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Editorial

Eating Habits and its Impact on Heart

Mohsin Masud Jan
Editor

World Heart Federation states that cardiovascular disease is the leading cause of death and disability in the world, killing 17.5 million people a year. That's a third of all deaths on the planet and half of all non-communicable disease related deaths. Around 80% of these deaths are in low and middle-in-come countries where human and financial resources are least able to address the CVD burden. By 2030, the loss of lives is predicted to rise to nearly 23 million.

In Pakistan, around 30 to 40 per cent of all deaths are due to cardiovascular diseases (CVD) and about 200000 people lose their lives to coronary heart disease CHD per year - that is 410/100000 of the population.

Pakistani population has one of the highest risks of coronary heart disease (CHD) in the world which refers to a narrowing of the coronary arteries, the blood vessels that supply oxygen and blood to the heart. It normally happens when cholesterol accumulates on the artery walls, creating plaques. According to the latest WHO data published in 2017 Coronary Heart Disease Deaths in Pakistan reached 265051 or 21.76% of total deaths. The age adjusted death rate is 246.84 per 100000 of population. The data ranks Pakistan at number 13 among countries where more deaths occur due to coronary heart disease.

Moreover, the survey highlighted the fact that children are also vulnerable. The risk for CVDs can begin before birth during foetal development, and increase further during childhood with exposure to unhealthy eating habits and lack of exercise. This huge number reflect different factors characteristic of our society and culture that are major cause of heart disease. For example, unhealthy lifestyle, fatty diets, oily and unhealthy foods, tobacco use, lack of exercise, and lack of awareness.

All of this can be changed and majority of lives can be saved if we begin to change our daily habits and incorporate healthy life choices. Most cardiovascular diseases can be prevented by addressing behavioral risk factors such as tobacco use, unhealthy diet and obesity, physical inactivity and harmful use of alcohol using population wide strategies. People who are at high cardiovascular risk due to the presence of one or more risk factors such as hypertension, diabetes, hyperlipidemia or already established disease need early detection and management using counseling and medicines, as appropriate.

By making just a few small changes to our lives, we can reduce our risk of heart disease and stroke, as well as improving our quality of life and setting a good example for the next generation for heart healthy eating habits are: control your portion size, use a small plate or bowl to help control your portions.

Eat larger portions of low-calorie, nutrient rich foods, such as fruits and vegetables, and smaller portions of high calorie, high sodium foods, such as refined, processed or fast foods. Eat more vegetables and fruits, vegetables and fruits are good sources of vitamins and minerals. Vegetables and fruits are also low in calories and rich in dietary fibre. It may help prevent cardiovascular disease.

Select whole grains, whole grains are good sources of fibre and other nutrients that play a role in regulating blood pressure and heart health.

Limit unhealthy fats, limiting how much saturated and trans fats you eat is an important step to reduce your blood cholesterol and lower your risk of coronary artery disease. A high blood cholesterol level can lead to a buildup of plaques in your arteries, called atherosclerosis, which can increase your risk of heart attack and stroke. Choose low fat protein sources, lean meat, poultry and fish, low fat dairy products, and eggs are some of your best sources of protein. Fish is another good alternative to high fat meats. Legumes beans, peas and lentils also are good sources of protein and contain less fat and no cholesterol, making them good substitutes for meat.

Reduce the sodium in your food, eating a lot of sodium can contribute to high blood pressure, a risk factor for cardiovascular disease. Reducing sodium is an important part of a heart healthy diet. Plan ahead; create daily menus and allow yourself an occasional treat, once we know which foods to eat more of and which foods to limit, we will be on our way toward a good health.

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Original Article

Frequency of Low Birth Weight Babies and Scio-Economic Status among the Mothers of Karachi

Tafazzul H Zaidi, Faheem Ahmed and Kiran Mehtab

ABSTRACT

Objective: To access the effects of Scio-economic factors on the low birth weight of the baby.
Study Design: Descriptive / cross sectional study
Place and Duration of Study: This study was conducted at the OPDs of National Institute of Child Health, Karachi from March 2018 to July 2018
Materials and Methods: The sample size of 104 mothers was drawn through non-probability purposive sampling technique. A self-administered structured questionnaire was constructed. Data was collected through the structured questionnaire. Pilot study was done to check the authenticity of questionnaire. Data was entered and analyzed on statistical package for social sciences (SPSS version 20) with 95% confidence interval and 5% margin of error. P-value less than 0.05 was considered statistically significant.
Results: 104 women who gave births to low weight babies participated in this research. All the women were multipara. 68.3% went through normal vaginal delivery. 72.1% women had monthly family income below 10,000 PKR. 30.8% of the women had 6 family members, it was found that women living in rural areas had more family members (72.8%) women living in rural areas had 10 or more family members. 43.3% had taken inter pregnancy interval of 1 year or less. 76% of the women delivered at hospital. 77.9% of the mothers were anemic during their pregnancy. When asked about any, 78.8% women had clinical visited during pregnancy. 58.9% of women did not increase their meals during pregnancy. 28.8% pregnant women took milk once in a week& 39.4% used to take milk once in a month. 53.8% of women used to eat meat once in a week and 31.8% consumed meat once in a month. 76.9% of women replied in negative for HTN, 96.2% of mothers replied in negative for diabetes and 90.4% didn't had TB during last 2 years. 94.2% of women didn't smoke. 40.4% of mothers had delivered low weight babies previously. Results showed that 68.3% women who gave birth to LBW baby were married at the age of 18 years or below. Results also showed that 77.9% were anemic during pregnancy. 51.9% women didn't increase their meals during pregnancy. 62.5% women had consanguineous marriage.
Conclusion: A holistic approach is needed to address the issue of early marriages in our society and strong actions are needed to be taken to spread the awareness of good antenatal care in the mothers.
Key Words: low, birth, weight, economic, status, marriage, nutrition

Citation of articles: Zaidi TH, Ahmed F, Mehtab K. Frequency of Low Birth Weight Babies and Scio-Economic Status among the Mothers of Karachi. Med Forum 2018;29(12):2-5.

INTRODUCTION

One of the important criteria for healthiness and well-being of children is growth status and growth pattern[1]. The analysis of growth patterns and the detection of aberrant growth patterns provide crucial information for the detection of pathologic condition. So growth and maturation of children is sensitive index of health and is influenced by many factors[2,3].

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Low birth weight (LBW) is introduced as a birth weight of a live born infant of less than 2,500 gram[4]. Some low birth weight babies are healthy, even though they're small. But being low birth weight can cause serious health problems for some babies. Low birth weights outcome of multi factorial factors like wise conditions affecting maternal health as chronic pathologies high blood pressure, diabetes and heart, lung and kidney problems other conditions like preterm labor ,infections, smoking, alcohol [5] and last but not the least women of low socioeconomic status which are at increased risk for delivering low birth weight babies due to poor nutritional status and lesser care during pregnancy, these all conditions can lead to LBW by causing either of these conditions. Premature birth is defined as birth before 37 weeks of pregnancy and fetal growth restriction**.** The clinical impression is that LBW children are often underweight and shorter than expected even when corrected for gestational age. [6] Babies born with low birth weight may be more likely

than babies born at a normal weight to have certain medical conditions later in life. These include high blood pressure, diabetes and heart disease[7]. The focus of public health authorities on low birth weight has been justified for a number of reasons. Firstly, at the individual level, reduced birth weight is an important risk factor in infant mortality; those born with a weight of less than 2,500 grams are at a greater risk of dying within first year of their life whether socioeconomic status is defined by income, occupation, or education. Education may also have independent effects, above and beyond income, because more highly educated mothers may know more about family planning and healthy behaviors during pregnancy. Effects of social factors on the growth rate of children were presented for the first time. They observed urban children were taller and grow faster than rural peers[8] and Studies revealed that large number of social-economic variables is associated with the physical development of children. These variables are consisting of parental profession, income, education birth order, family size, and urbanization[9,10]. In this study, we determine the association between low birth weight and socioeconomic status so that in future we can prevent poor fetal outcomes due to low birth weight.

MATERIALS AND METHODS

A descriptive cross-sectional study was conducted at OPDs of National Institute of Child Health OPDs in Karachi from March 2018 till July 2018. A total of 104 participants were taken and the targeted population was mothers of newborns babies with low birth weight. The technique applied for the sampling purpose was a non-probability connivance sampling. The inclusion criteria were all mothers who gave birth to low birth weight babies and the exclusion criteria were language barrier and non-respondents. Self designed questionnaires containing 30 close ended questions were used for data collection by personal interviews and the main variables were family income, age below 18 at time of marriage, gap between present and previous child and increased no of meals during pregnancy. SPSS version 20 was used to analyze and calculate frequency and percentages for categorical variables, mean and standard deviation for numerical variables and chi square was taken to establish an association between the categorical variables. P-value of < 0.05 was taken as statistically significant

RESULTS

104 women who gave births to low weight babies participated in the research. All the women were multipara. Majority of women 68.3% went through normal vaginal delivery, whereas 23.1% and 8.7% had had c section and instrumental delivery respectively. Majority of the mothers belonged to poor families. 72.1% women's monthly family income was below 10,000 PKR. 20.2% of the women had 4 members, 30.8% had 6, 19.2% had 8, 14.4% had 10 and 15.4% had more than 10 members in their family. 72.8% women living in rural areas had 10 or more family members. 43.3% had taken inter pregnancy interval of 1 year or less and 28.8% had taken interval of 2 years or less whereas 14.4%, 2.9% and 10.6% had had intervals of 3, 4 and more than 4 respectively. Most of the women delivered at hospital (76% deliveries at hospital and 24% deliveries at home).77.9% of the mothers were anemic during their pregnancy. 78.8% had had clinical visits during pregnancy.

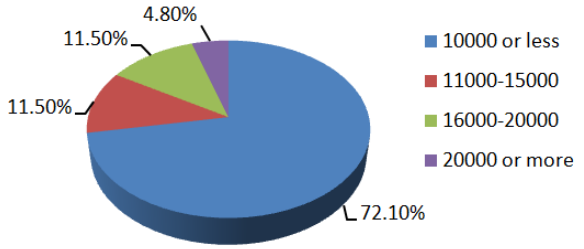

Figure No.1: Frequencies of family income of the participants

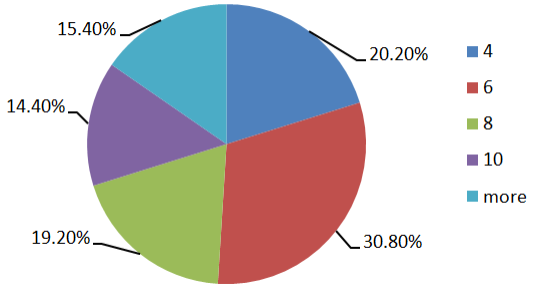

Figure No.2: Frequencies of number of family members of women

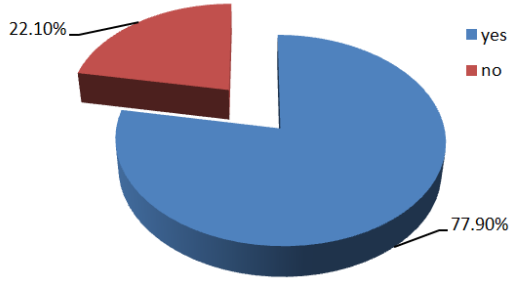

Figure No.3: Frequencies of mothers who suffered from anemia during pregnancy

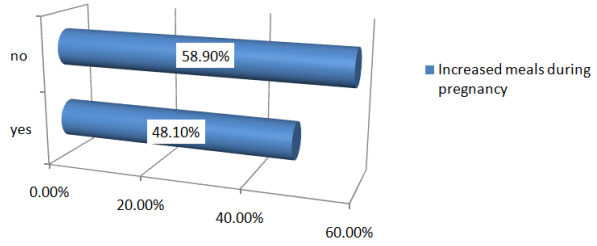

Figure No.4: Frequencies of mothers who increased meals during pregnancy

The diet also played a part in low weight babies as 58.9% of women did not increase their meals during pregnancy. 31.7% of the mothers used to take milk regularly while 28.8% & 39.4% used to take milk once in a week and once in a month respectively. Similarly 14.4% of women used to eat meat daily whereas 53.8% and 31.8% consumed meat once in a week and once in a month respectively. 76.9% of women replied in negative for HTN, 96.2% of mothers replied in negative for diabetes and 90.4% didn't had TB during last 2 years. 94.2% of women didn't smoke. The past obstetric history did affect these pregnancies as 40.4% of mothers had delivered low weight babies previously. 51 out of 71 mothers who got married at/below the age of 18 were also anemic during pregnancy and 38.5% of the total women (40 out of 104) were those who got married at or below the age of 18 years and had done consanguineous marriages.

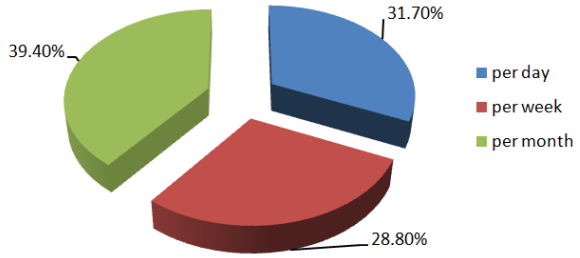

Figure No.5: Frequencies of milk intake of women during pregnancy

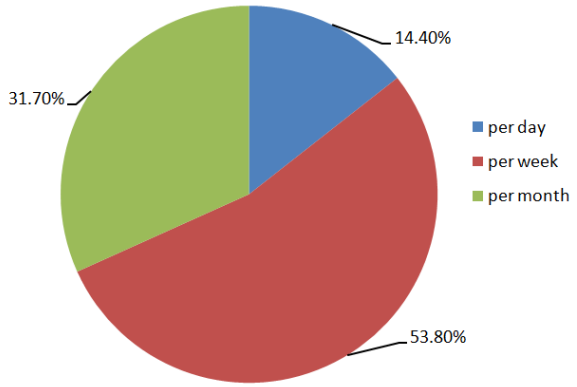

Figure No.6: Frequency of meat intake of women during pregnancy

DISCUSSION

The causes Of LBW have been the focus of a vast number of investigations over the last few decades. The effect of socioeconomic disadvantage on low birth weight has been well established[11,12,13]. The study demonstrates effect of many factors on birth weight mainly including family income, no. of family members, parity, small age at the time of marriage, anemia during pregnancy, diet during pregnancy, inter pregnancy intervals and previous low weight deliveries. The problem is most common among poor families as the family income of majority of the mothers (72.1%) was below 10,000 PKR. This result is consistent with the previous research which states thatas the median family income of an area decreased its percentage of low birth weight increased[14].

All of the women were multipara. Inter pregnancy interval and previous low weight deliveries seemed to affect the birth weight in decent amount as 43.3% (n=45) had taken intervals of 1 year or less and 40.4% (n=42) had given birth to low weight deliveries previously. This is comparable to previous researches that reported that low inter pregnancy interval is associated with poor fetal outcomes including low birth weight.[15]

Despite the fact that nutrition requirement is increased during pregnancy majority of the mothers didn't increase their meals during their pregnancy that might have led to low weight newborns. Maternal nutrition effect on birth weight has been reported in many studies[16].

Past studies show that Blood Pressure during gestational age is strong risk factor for LBW[17]. However the relationship between hypertension and low weight of newborn wasn't convincing as 96.2% weren't hypertensive. This could be due to short number of participants in the study or HTN could have gone undiagnosed. However most of the women (77.9% n=81) were anemic during their pregnancy which proves anemia during pregnancy as one of the most important culprits for low birth weight. Low birth weights in anemic women have been reported in several studies[18,19].

Ironically the rate of consanguineous marriages in these mothers of low weight babies was high, as 62.5% of the women got married to their cousins. It is difficult to explain the reason for this surprising finding that we collected but it is certainly an interesting prospect for future research. Secondly there was found to be a relation between consanguineous marriage and early marriage as 38.5% of women were those who got married at 18 years or below of age and did consanguineous marriage. So, consanguineous marriage could be one of the main reasons for early marriage.

Consistent with another research which reported that as the social area deteriorated, the incidence of mothers at risk for low birth weight on the basis of being less than 17 years of age and on the basis of inadequate prenatal care increased.[20] our study also showed that out 75 mothers whose monthly family income was less than 10,000 PKR, 52 got married at the age of 18 or below.

Many studies have been conducted relating maternal smoking and low weight newborn stating that cigarette smoking during pregnancy is a strong dose-dependent risk factor for LBW[21,22]. But we were unable to find this association as most of mothers didn't smoke during pregnancy.

Finally, there are a few limitations of this study. Firstly the participants belonged to different races, a factor which was excluded and second was the language barrier in many patients which might have influenced the study.

CONCLUSION

Socioeconomic factors do affect the pregnancy outcome with disadvantageous factors like lack of education, low family income, and more no. of family members leading to low weight of the newborn. Women belonging to poor families are more likely to be anemic during their pregnancy and this is in part due to lack of prenatal care. Women getting married at younger ages are prone to deliver low weight babies and the risk of being anemic during pregnancy in these young mothers is also elevated. Therefore a holistic approach is needed to address the issue of early marriages in our society and strong actions are needed to be taken to spread the awareness of good antenatal care in the mothers.

Author's Contribution:

Concept & Design of Study:	Tafazzul H Zaidi
Drafting:	Faheem Ahmed
Data Analysis:	Kiran Mehtab
Revisiting Critically:	Tafazzul H Zaidi, Faheem Ahmed
Final Approval of version:	Tafazzul H Zaidi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Significance of Sonography in Assessment of Ectopic Pregnancy

Nasir Mahmood[1], Kishwar Naheed[2], Zille Huma[2], Aqeel Ahmed[2], Huda A Majeed[2] and Zahir Mustafa[3]

ABSTRACT

Objective: To assess the role of sonography in the assessment of ectopic pregnancy and to discover additional advantages of TVS over the TAS.

Study Design: Prospective study

Place and Duration of Study: This study was conducted at the Departments of Radiology & Obstetrics and Gynecology, Pak Red Crescent Teaching Hospital, Kasur from March 2013 to March 2018.

Materials and Methods: 100 women with clinical suspicion of ectopic pregnancy were assessed through sonography. Sonography information was correlated with the post surgical histopathology diagnosis to find out specificity, sensitivity and predictive value of sonography.

Results: Among 100 patients, 25.4% had pelvic inflammatory disease, 7.4% had previous history of ectopic pregnancy, 2.6% had tubal surgery and 1.8% patient had in vitro fertilization while most of the patients (80.0%) had no any risk factor. Among ONE HUNDRED patients, 47 cases were diagnosed with ectopic pregnancy (true positive results). The ectopic pregnancy unambiguous diagnosis was reached with transabdominal sonography in just 29.0% patients while remaining 71.0% patient needed biphasic sonography. For the diagnosis of ectopic pregnancy, sensitivity was 94.0% and specificity 100.0% while positive predictive value was 100.0% and negative predictive value was 63.0%.

Conclusion: Study concluded that accuracy of ultrasonography was almost 100% especially the trans-vaginal sonography which is believed as a procedure of choice in early gestation and reliable workup in women having suspected ectopic gestation.

Key Words: Ectopic pregnancy (EP), Transvaginal Sonography (TVS), Transabdominal sonography TAS

Citation of articles: Mahmood N, Naheed K, Huma Z, Ahmed A, Majeed HA, Mustafa Z. Significance of Sonography in Assessment of Ectopic Pregnancy. Med Forum 2018;29(12):6-9.

INTRODUCTION

Ectopic pregnancy (EP) is referred to an abnormal pregnancy process in which fertilized eggs develop beyond uterine cavity and it is also described as exfetation. Ectopic pregnancy takes place once a fertilized ovum implants beyond endometrial cavity. The word ectopic is taken from 'ektopos' which is a Greek word and the meaning is 'out of place'.[1]

The EP is an elevated risk condition which takes place among 1.9% of the reported cases. Majority of the ectopic pregnancies are reported among women aged between 26-30 years.[2]

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Among females who visit emergency department in their first trimester with bleeding, pain or both range from 6 to 16 percent. The reported prevalence in Pakistan has been described as 1:112 – 1:130.[3] Among ectopic pregnancies, almost 98% take place in uterine tubes. Out of these, 70% of tubal EP takes place in ampullary section, followed by fimbriae, isthmus and interstitial tubal sections. The remaining EP can be observed in numerous locations outside the uterine tubes including ovary, cervix, peritoneal cavity and cesarean section scars.[4]

Sign and symptom of ectopic pregnancy are same like several other gynecological complaints and clinical doubt will be raised amongst the women of reproductive age, who visit hospitals due to irregular vaginal bleeding and abdominal pain.[5]

The most significant risk factors of ectopic pregnancy are history of EC, gynecologic surgery and pelvic inflammatory disease. Several other risk factors comprise history of placenta previa, infertility, intrauterine device use, in vitro fertilization, endometriosis, congenital uterine abnormalities, smoking history and exposure to diethylstilbestrol.[6]

Women who become pregnant and have known significant risk factors should be evaluate for possible ectopic pregnancy even in absence of symptoms.[7]

Ectopic pregnancy is an obstetric emergency with permanent morbidity as well as mortality. Therefore, high level of doubt, timely diagnosis and adequate treatment enhances future reproductive capability. In early identification sonography plays a helpful role.[8] Before the introduction of ultrasound and sensitive rapid assay serum, HCG (human chorionic Gonadotrophin) quantification, ectopic pregnancy was mostly a serious diagnosis.[9] The ultrasonography is widely available, inexpensive, rapid, simple and noninvasive investigative modality which helps in rapid detection, presence, and location of pregnancy.[10]

Accurate calculation of gestation with Transvaginal Ultrasound, when it is within the uterus, is the best determinant of pregnancy, rather than an absolute HCG.[11]

Due to current ultrasound equipment and capability to measure serum beta human chorionic Gonadotrophin level, the diagnosis of EC has been improved but still a challenge for health care providers.[12] In ectopic pregnancy, the range of ultrasonography findings is broad, detection of the extra-uterine gestational sac having a yolk sac and ectopic heart beat substantiates the identification and investigative findings comprise a cystic or tubal masses or solid adnexal masses (including tubal ring sign, showing a tubal gestational sac) and fluid in the cul-de-sac.[2]

The recent ultrasonography methods that are utilized in health facilities are TVS (trans-vaginal sonography) and TAS (transabdominal sonography).[13] Several researches who worked on EP, started with transabdominal sonography to detect the ectopic pregnancy and have demonstrated correct diagnosis among 70 to 89 percent cases.[2] The accuracy of abdominal ultrasonography can be affected due to factor like obesity inadequate bladder filling and pelvic structures obscuration through bowel gas. Sonography scanning in combination with beta human chorionic Gonadotrophin was observed extremely helpful in determination of ectopic pregnancy or otherwise. If transabdominal investigation is not correct, a TVS should be carried out when possible.[12]

During past two decades, TVS is being used on vast level among women having suspected ectopic pregnancy primarily owing to its availability, outstanding diagnostic performance, repeatability, safety and low cost.[14] For the identification of EC, the TVS is believed first-line imaging method and it has 90.9% diagnostic accuracy.[15] Transvaginal sonography with high frequency transducer, can offer better diagnostic information regarding site of ectopic pregnancy when compared with transabdominal sonography. Early identification of ectopic pregnancy helps in successful therapeutic management.[16]

Ectopic pregnancy is believed a leading problem among females. It is high risk condition which can cause morbidity as well as mortality. Hence, present study aims to assess the role of sonography in the assessment of ectopic pregnancy and to discover additional advantages of TVS over the TAS.

MATERIALS AND METHODS

It was prospective study in which 100 women with clinical suspicion of ectopic pregnancy were assessed through sonography. Study was carried out from October 2013 to March 2018. It was non-consecutive patients group who fulfilled clinical criteria of positive serum beta human chorionic Gonadotrophin levels of above 1500 miu/ml, bleeding per vaginum, with/without amenorrhea and abdominal pain.

Pelvic sonography was carried out, initially utilizing transabdominal route with complete urinary bladder, after that, trans-vaginal sonography if results were doubtful. Sonography machines utilized during research were GE (General Electric) PRO 200 and ECCOCEE (Toshiba) Convex 3.75 MHZ, multi frequency probe (3-5 MHZ) and transvaginal multi-frequency probes (5.5-6.5 MHZ) were utilized for investigations. Following sonographic standard features were utilized as diagnostic criteria of EP.

i) Direct signs: Detection of live embryo in adnexa.

ii) Indirect signs: Adnexal mass and/or free fluid presence in Douglas pouch. Masses, if found, were localized, their contour were described, internal architecture were examined and sonographic diagnosis was performed.

Sonographic information was correlated with the histopathologic diagnosis to find out specificity, sensitivity and predictive value of sonography. The collected data was analyzed through SPSS 20.0. Confidentiality of the data was also ensured.

RESULTS

Result shows that among 100 patients, 12.7% (13) had pelvic inflammatory disease, 3.7% (4) had previous history of ectopic pregnancy, 1.8% (2) had tubal surgery and 1.8% (1) patient had in vitro fertilization while most of the patients 80.0% (80) had no any risk factor.

Among hundred patients, 80 cases were diagnosed with ectopic pregnancy (true positive results). The ectopic pregnancy unambiguous diagnosis was reached with transabdominal sonography in just 29.0% (29) patients while remaining 71.0% (71) patient needed biphasic sonography. Only 3.7% (4) cases were found having live ectopic gestation in the shape of fetal pole by cardiac activity, these were detected only on trans-vaginal sonography. Among remaining cases, the diagnosis was done due to indirect signs and found that 47.0% (47) patients had adnexal mass, 38.0% (38) patients had free fluid and 15.0% (15) patients had both features. Masses detected were varied in texture with cystic and solid areas. In a few patients, free fluid was anechoic and among other patients it had inner echoes

recommending blood loss. Fluid was expanding up to Morrison's pouch in one patient.

Among 10 patients, EP was excluded (true negative). The diagnosis was confirmed by subsequent follow up and association with beta human chorionic gonadotrophin. There were six patients who had false negative diagnosis while none of the patients had false positive diagnosis.

Results shows that sensitivity was 94.0% and specificity 100.0% while positive predictive value was 100.0% and negative predictive value was 63.0%.

DISCUSSION

Ectopic pregnancy having mortality rate of 0.2/1000 of ectopic pregnancies, about two third of these death are associated with substandard care[17]. Ovarian ectopic pregnancy result from secondary implantation on the ovary or from failure of follicular extrusion[18] Although many earlier studies linked ovarian ectopic pregnancy to the use of intrauterine contraceptive devices, more recent research has refuted his ascertain.[19] Other risk factors for ovarian ectopic pregnancy include a history of endometriosis, ovulation induction and other assisted reproductive technologies and advanced maternal age [20,21,22]. Differential diagnosis of ovarian ectopic pregnancy can include ovarian cyst ,appendicitis, tubal ectopic or an early or failed intrauterine pregnancy[21,23]. During current years, due to change in living habits of people and lack of sexual health education, the frequency of EP is constantly increasing. It is most significant factor that leads to maternal mortality and fertility loss. Timely identification and treatment evade the incidence of unfavorable events and reserve patients' fertility function. For diagnosis of the disease, sonography assessment is the first method of choice. The transabdominal sonography is comparatively comprehensive to show complete structures of pelvic cavity, however the sonographic beam is easily intervened by subcutaneous fat, intestinal gas and several other factors. Though, microscopic structure display is not very good, the trans-vaginal sonography resolution ratio is comparatively high with less interruption by factors mentioned above, however the range of display is limited.[24] Present study was carried out to assess the role of sonography in the assessment of ectopic pregnancy. To acquire appropriate outcomes,100 women with clinical suspicion of ectopic pregnancy were included in the study and found that 12.7% patients had pelvic inflammatory disease, 3.7% previous history of ectopic pregnancy, 1.8% had history of tubal surgery and 1.8% patient had in vitro fertilization while mainstream (80.0%) of patients had no any risk factor. The findings of our study are better than the study undertaken in Dhaka (Bangladesh) by Nahar and coworkers (2013) who reported that 46% women had no risk factor while 32% patients had pelvic inflammatory disease, 10% had previous history of EP, 2 % had history of tubal surgery and remaining proportion had other factors like history of appendicitis and salpingits etc.[5]

During study transabdominal sonography was performed among 29.0% patients and biphasic among 71.0% patients. Among hundred suspected ectopic pregnancy cases, 80 were true positive. Out of these 80 cases, 3.7%(4) cases were found having live ectopic gestation in the form of fetal pole with cardiac activity while among remaining 76 cases of indirect signs like adnexal mass was found in 45 patients and free fluid in 19 patients while both features were observed in 12 patients. While the results of a study conducted by Imtiaz (2016) indicated that fetal pole with cardiac activity was seen in only 4.2% patients and adnexal mass among 43.4% cases which is almost comparable with our study findings.[3]

There were five true negative and three false negative cases of ectopic pregnancy. Study disclosed that sensitivity, specificity, positive predictive value and negative predictive value for the diagnosis of EP was 94.0%, 100.0%, 100.0% and 63.0% respectively. The results of our study are comparable but exhibited better scenario than the study carried out by Imtiaz (2016) who confirmed that sensitivity, specificity, positive predictive value and negative predictive value for the diagnosis of ectopic pregnancy was 93.98%, 95.07%, 96.15% and 92.34% respectively. Another study performed by Niazi and associates (2015) highlighted that sensitivity, specificity, positive predictive value and negative predictive value for the diagnosis of ectopic pregnancy was 96.0%, 89.0%, 97.0 and 84.0%, respectively.[11] A study carried out by Haque and teammates (2013) showed that for the detection of EC, the sensitivity was 92.64% specificity 74.47%, negative predictive value 90.90% and positive predictive value was 84.0%.[25]

Preferably patients suspected of EP should have ultrasonography when outcomes of beta human chorionic Gonadotrophin are available. Unluckily, in emergency situation, it is mostly not possible. It was found during study that at the time of sonography, most of the women had their results pending. Therefore, study was unable to correlate the sonographic findings with those of beta human chorionic Gonadotrophin.

Sonography is a best investigative modality but it has some limitations. One of these limitations is operator dependence. The pathology could be missed if it is getting any audio window in presence of the air, for example, bowel gases. It is an important factor to evaluate patients with full bladder in TAS, because the bowel loops obscure pelvic structure view. TVS does not need full bladder, though, sometimes, assessment becomes complicated owing to inadequate field of view.

CONCLUSION

Ectopic pregnancy is believed to be a leading problem among females of reproductive age group. Our Study concluded that accuracy of ultrasonography was almost 100% especially the trans-vaginal sonography which is believed to be a procedure of choice in early gestation, and is a reliable ultrasonography workup in women having suspected ectopic gestation. Further studies are needed on large scale to assess the role of sonography in the assessment of ectopic pregnancy to prevent women from ill effects of the disease.

Author's Contribution:

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Final Approval of version:	Nasir Mahmood

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

The Frequency of Febrile Neutropenia in Children with Acute Leukemia admitted at Khyber Teaching Hospital, Peshawar

Jan Muhammad Afridi, Ayisha Aman and Yasir Rehman

ABSTRACT

Objective: To determine the frequency of febrile neutropenia in children with leukemia admitted in the department of child health KTH Peshawar.

Study Design: Descriptive / cross-sectional study.

Place and Duration of Study: This study was conducted at the Department of pediatrics, Khyber teaching hospital, Peshawar from March 2016 to September 2017.

Materials and Methods: 50 patients of acute leukemia (subtypes of ALL and AML) were selected through non randomized convenient sampling. Before enrolling the patient informed consent was taken from the attendant. Detailed history and examination was performed and full blood count was sent to Khyber Teaching Hospital laboratory. Common clinical features were noted along with hematological parameters. Standardized management protocols were applied to these patients.

Results: Out of 50 patients 31 were male and 15 were female that presented with acute lymphoblastic leukaemia and 4 patients were of acute myeloid leukaemia with two patients male and 2 female. Out of 50 patients 17 cases presented with febrile neutropenia, out of these 12 patients were male and 5 patients were female. 16 patients with febrile neutropenia were Acute lymphoblastic leukemia while 1 patient had Acute myeloid leukemia. 9 patients were between age range of 1-5 years, 7 were between 5-10 years, 1 patient was over 10 years age and no patient less than 1 year presented with febrile neutropenia. Pallor and fever were the most common presenting complaints followed by organomegaly. Other clinical features which were present were lymphadenopathy bruises and patechia, bone pain and tenderness abdominal pain and vomiting.

Conclusion: In our study out of 50 patients 31 were male and 15 were female that presented with acute lymphoblastic leukemia and 4 patients were of acute myeloid leukemia with two patients male and 2 female. 17 cases presented with febrile neutropenia, out of these 12 patients were male and 5 patients were female. 16 patients with febrile neutropenia were Acute lymphoblastic leukemia while 1 patient had Acute myeloid leukemia. 9 patients were between age range of 1-5 years, 7 were between 5-10 years, 1 patient was over 10 years age and no patient less than 1 year presented with febrile neutropenia. Fever was presenting complaint in all the patients comprising 100% patients, followed by pallor, hepatomegaly and splenomegaly.

Key Words: Febrile Neutropenia, Acute leukemia, Acute lymphoblastic (ALL) and Mylogenous leukemia (AML).

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INTRODUCTION

Leukemia is the most common malignancy of children with a prevalence of 129 in one million, and the second cause of death among children aged 5 to 14 years. Most of the children have chance to develop neutropenia during their treatment period.[1]

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Acute leukemia represent neoplasm of the hematopoietic cell precursors manifested as clonal expansion of myeloid and lymphoid hematopoiesis[2]. Acute lymphoblastic leukemia (ALL) is the most common malignancy diagnosed in patients younger than 15 years, accounting for 26% of all cancers and 78% of leukemia in this age group, and for approximately 20% of adult acute leukaemias.[3] Overall survival in ALL ranged from 45% to 81% (commonly >60%) and event-free survival ranged from 41% to 70% (commonly >50%). [4]

Acute myeloid leukemia (AML) of childhood and adolescence accounts for 20 % of pediatric leukemia. Cure rates are lower in comparison to those in acute lymphoblastic leukemia.[5] Below 15 years age Acute myeloid leukemia comprises only 15% to 20% of cases.[6] Factors associated with development of leukemia are hereditary disorders with susceptibility to chromosomal breakage due to exposure to radiation[7,8.]

Child with leukemia has very varied and nonspecific presentation causing delay in diagnosis.[9] Infections and febrile neutropenia are leading causes of treatment related morbidity and mortality in pediatric and AYA (adolescent and young adult) patients in developing countries. Socio-economic and cultural factors continue to play a big role in treatment decision process.[10] Treatment of febrile neutropenia which is an oncological emergency with early and efficient therapy decreases morbidity and mortality significantly.[11] Intensive chemotherapy directed against acute myeloid leukemia of childhood is followed by profound neutropenia and high risk for bacterial and fungal infections.[12] The frequency of febrile neutropenia increased in years with the increase in the intensity of treatment. Febrile neutropenia developed more commonly in patients with high risk and thus received more intensive treatment and patients who were not in remission.[13] The frequency of febrile neutropenia in children with Leukemia is reported around 34 %.[14]

The majority of episodes will not have an identifiable causative organism. Gram-positive bacteria and Gram-negative bacteria were the most common causative pathogens identified. With appropriate antimicrobial therapy and supportive management, the overall risk of mortality from febrile neutropenia is extremely low.[15]

Local data regarding incidence of febrile neutropenia in children suffering from leukemia is limited and there is a need of further research work in this regard. Owing to increasing resistance and the limited arsenal of new antibiotics, especially against Gram-negative pathogens, carefully designed antibiotic regimens are obligatory for febrile neutropenic patients, along with effective infection control Proper and vigilant management for patients with febrile neutropenia can prove significant. Therefore in my study I would like to identify patients admitted in Khyber teaching hospital with febrile neutropenia as it would help measure the burden it lays as well as dire need for proper patient education regarding febrile events during their course of chemotherapy.

MATERIALS AND METHODS

This study was conducted at Department of pediatrics, Khyber teaching hospital, Peshawar from March 2016 to September 2017. A cross-sectional descriptive study design was used and 50 patients of acute leukemia (subtypes of ALL and AML) were selected through non randomized convenient sampling. Before enrolling the patient informed consent was taken from the attendant. Detailed history and examination was performed and full blood count was sent to Khyber Teaching Hospital laboratory.

Common clinical features were noted along with hematological parameters. Standardized management protocols were applied to these patients.

Inclusion criteria: patients less than 15 years diagnosed cases of Leukemia.

All patients irrespective of treatment stage.

Exclusion criteria: patients more than 15 years.

RESULTS

Out of 50 patients 31 were male and 15 were female that presented with acute lymphoblastic leukaemia and 4 patients were of acute myeloid leukaemia with two patients male and 2 female.

Out of 50 patients 17 cases presented with febrile neutropenia, out of these 12 patients were male and 5 patients were female. 16 patients with febrile neutropenia were Acute lymphoblastic leukemia while 1 patient had Acute myeloid leukemia. 9 patients were between age range of 1-5 years, 7 were between 5-10 years, 1 patient was over 10 years age and no patient less than 1 year presented with febrile neutropenia.

Pallor and fever were the most common presenting complaints followed by organomegaly. Other clinical features which were present were lymphadenopathy bruises and patechia, bone pain and tenderness abdominal pain and vomiting.

Statistics:

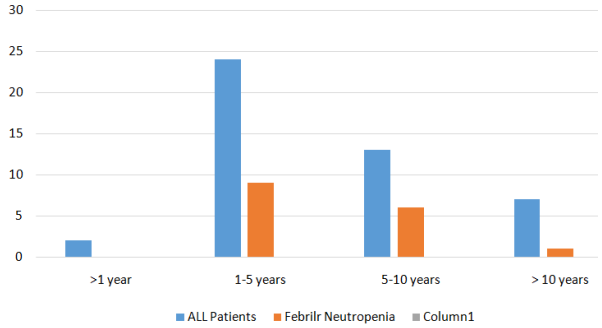
	ALL	AML
Mean	8.6	4.3
Median	2.5	2.5
Mode	2.5	2.5

Pie chart/ Table 1 shows age wise frequency of Febrile neutropenia in ALL.

Pie chart/ Table 2 shows age wise frequency of Febrile neutropenia in AML.

Bar Graph/Table 3 shows gender wise frequency of febrile neutropenia in Acute leukemia (ALL/AML).

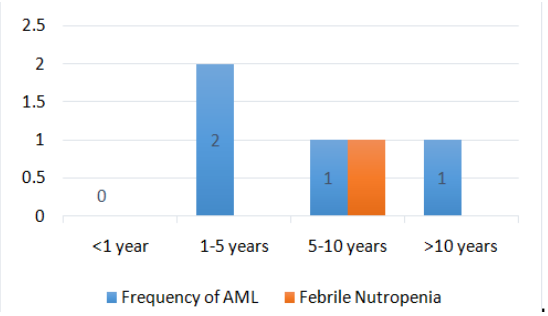
Bar chart/ Table 4 shows frequency of presenting complaints in children with ALL and AML



Pie Chart No.1: Age wise frequency of Febrile neutropenia in ALL.

Table No.1: Age wise frequency of Febrile neutropenia in ALL.

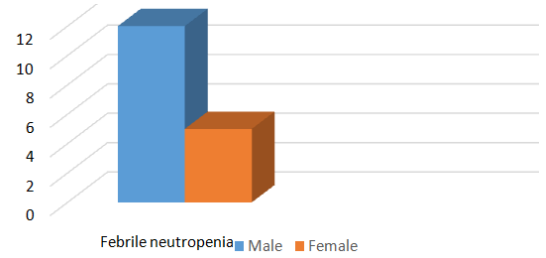
Age	Frequency of ALL	Frequency of Febrile Neutropenia
<1 year	2	0
1-5 years	24	9
5-10 years	13	6
>10	7	1



Pie Chart No.2: Age wise frequency of AML.

Table No.2: Age wise frequency of AML.

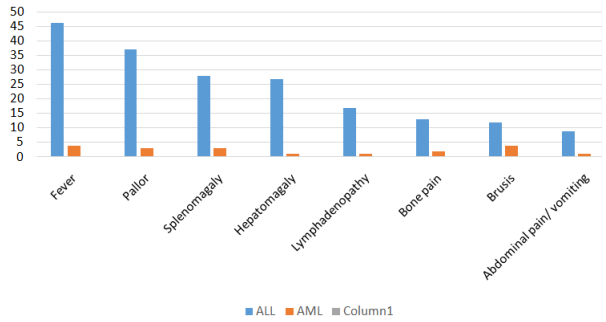
Age	Frequency of AML	Frequency of Febrile Neutropenia0
<1 year	0	0
1-5 years	2	0
5-10 years	1	1
>10	1	0



Pie Chart No.3: Gender wise frequency of ALL and AML

Table No.3: Gender wise frequency of ALL and AML

	Male	Female
Febrile Neutropenia	12	5



Pie Chart No.4: Frequency of presenting complaints in children with ALL and AML.

Table No.4: Frequency of presenting complaints in children with ALL and AML.

Clinical features	ALL	AML
Fever	46	4
Pallor	37	3
Splenomegaly	28	3
Hepatomegaly	27	1
Lymphadenopathy	17	1
Bone pain/ tenderness	13	2
Bruises/ Patehia	12	4
Abdominal pain/ vomiting	9	1

DISCUSSION

There is very little information available from developing Asian countries including Pakistan about the incidence of febrile neutropenia in children with leukemia. Hospitalization for febrile neutropenia in leukemia patients is associated with considerable morbidity, mortality, and cost we undertook this study to find out incidence of febrile neutropenia in children with leukemia admitted at Khyber teaching hospital Peshawar.

In our study 46 (92%) patients were suffering from ALL and 4 (8%) were diagnosed as AML. In contrast S Zaki et al[16] reported 8.1% of all the patients diagnosed with leukemia having AML while 91.9% had Acute lymphoblastic leukemia. Another study by Jawaid[17] A et al reported 14.7 % of patients having AML and 85.3% cases of ALL.

We found that 34% patients of leukemia presented to us with febrile neutropenia, which correlates to another study by E Castagnolaet al.[14]Out of 17 patients with febrile neutropenia 16 patients had Acute lymphoblastic leukemia while 1 patient had Acute myeloid leukemia. 9 patients were between age range of 1-5 years, 7 were between 5-10 years, 1 patient was over 10 years age and no patient less than 1 year presented with febrile neutropenia.

In our study fever is the most common finding in all the patients. This was also found to be similar in different national and international studies. National studies by Fadoo z et al[18] and Faseeh Shahab et al[2] where fever was first presenting complaint approximately 88.7% and 77% respectively. Bone marrow failure due to marrow infiltrates or chemotherapy leads to pallor (anaemia) bleeding (thrombocytopenia) and susceptibility to infection (neutropenia)[19]. In our study 80% of patients presented with Pallor. Whereas Faseeh et al reported the same about 33% of patients presented with Pallor[2].

This is consistent with several other studies Zaki et al[16] reported fever, bleeding and Pallor as the main presenting complaints. Another local study by Mushtaq N et al[20] also reported fever, bruises and pallor as the commonest presenting complaints.

In our study enlargement of liver, spleen and lymph nodes are more common in acute leukaemia. Hepatomegaly was seen in 56% of patients, splenomagaly in 62% and lymphadenopathy in 36% of patients. Similar findings were reported by Faseeh etal[2] with hepatomegaly in 71% patients splenomegaly 66% lymphadenopathy in 71% of patients.

CONCLUSION

In our study out of 50 patients 31 were male and 15 were female that presented with acute lymphoblastic leukemia and 4 patients were of acute myeloid leukemia with two patients male and 2 female.

Out of 50 patients 17 cases presented with febrile neutropenia, out of these 12 patients were male and 5 patients were female. 16 patients with febrile

neutropenia were Acute lymphoblastic leukemia while 1 patient had Acute myeloid leukemia. 9 patients were between age range of 1-5 years, 7 were between 5-10 years, 1 patient was over 10 years age and no patient less than 1 year presented with febrile neutropenia.
Fever was presenting complaint in all the patients comprising 100% patients, followed by pallor, hepatomegaly and splenomegaly.

Recommendations: Febrile neutropenia is a serious complication of leukemia and its treatment. Patients with leukemia presenting with high grade fever should be screened for febrile neutropenia and to be managed accordingly.

Author's Contribution:

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Data Analysis:	Yasir Rehman
Revisiting Critically:	Jan Muhammad Afridi, Ayisha Aman
Final Approval of version:	Jan Muhammad Afridi

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Immunohistochemical Expression of BCL-2 in Adenoid Cystic Carcinoma of Salivary Gland Tumors

Faiz Rasul[1], Zainab Rizvi[1], Sultan Muhammad Wahid[1], Muhammad Talha Haseeb[2], Rozina Jaffar[3] and Ayesha Amjad[1]

ABSTRACT

Objective: To determine expression of BCL-2 protein in Adenoid cystic carcinoma of salivary glands.
Study Design: Descriptive study.
Place and Duration of Study: This study was conducted at the Departments of Surgery, Lahore General Hospital, Mayo Hospital, and de'Montmorency college of Dentistry, Lahore from February 2017 to August 2017.
Materials and Methods: Thirty five cases of Adenoid cystic carcinoma (ADCC), of salivary glands were selected. Slides were prepared by routine hematoxylin and eosin (H & E) staining, as well as by Immunohistochemistry (IHC) for BCL-2. Grading of ADCC was done as low, intermediate and high grades on H&E sections. Scoring of BCL-2 expression was determined on BCL-2 immunohistochemical stained slides. Data was entered into SPSS version 21 and descriptive statistics were determined.
Results: In this study most common age group affected was 41-60 years age (40%), cases of ADCC were more common in female as compared to male (54%) Expression of BCL-2 was strongly positive in all cases of ADCC. In major salivary gland parotid glands was the most common site while in minor salivary glands most common site was palate. Majority cases reported as excisional biopsy (54.3%) with size 2-5cm (68.8%). Histopathologically 19 cases (54%) were categorized as high grade tumor. All cases showed expression of BCL-2 irrespective of the grade of the tumor.
Conclusion: BCL-2 protein is expressed in Adenoid cystic carcinoma. Its expression is helpful in grading small biopsies, predicting behavior, and planning target therapy of Adenoid cystic carcinoma
Key Words: BCL-2, salivary gland tumors, immunohistochemistry, Adenoid cystic carcinoma. Immunohisto=-chemistry,

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INTRODUCTION

The World Health Organization describes ADCC as a basaloid tumor containing both epithelial and myoepithelial cells[1]. It is the second most common malignant salivary gland tumor[2], and approximately 1% of all head and neck region malignancies[3]. It accounts for 10% of all salivary gland neoplasms[4].Its frequency is much lower in major salivary glands as compared to minorsalivary glands [5]. In the oral cavity, palate is the most common site (39.9%) and tongue is the second most common (19.8%).

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Among the major salivary glands, submandibular gland is the most common site followed by parotid gland, 15-30% and 2-15 % respectively[6]. Slow growth rate, perineural invasion and delayed onset of distant metastasis are the typical features of ADCC. It is ultimately fatal due to distant metastasis and late recurrence[1].

Accurate diagnosis depends upon the histological evaluation by precise method for malignant salivary gland tumors [7]. The histopathological diagnosis of these tumors is usually made through the assessment of histological architecture, cellular structure and differentiation, component of tumor stroma, growth pattern of the tumor borders, and along with the clinical information[8]. There are three growth patterns: the cribriform or glandular type, the tubular type and the solid type. [9] Tumor is Graded as Low Grade (Tubular pattern), Intermediate Grade (cribriform pattern with < 30% solid component), and High Grade (>30% solid component). [10]Perineural invasionsis also observed in this pattern which is a characteristic feature of ADCC[11].

MATERIALS AND METHODS

This is a descriptive study in which thirty five cases of ADCC of salivary glands were selected from Departments of Surgery, Lahore General Hospital, Mayo Hospital, and de'Montmorency college of Dentistry, Lahore from February 2017 to August 2017. Slides were prepared by routine hematoxylin and eosin (H&E) staining, as well as by Immunohistochemistry (IHC) for BCL-2. Grading of ADCC was done as low, intermediate and high grade. Scoring of BCL-2 expression was determined on BCL-2 immunohistochemical stained slides. BCL-2 immunoreactivity was divided into four groups as follows: Score Zero (0): Negative [When neoplastic cells stained less than 5%], score one (1): + weak positive (WP) [When neoplastic cells stained 5-19%], score two (2): ++ moderate positive [When neoplastic cells stained 20-50%] score three (3): +++ strong positive (SP) [When neoplastic cells stained more than 50%].Observations were made on the basis of intensity of cytoplasmic staining. The intensity was graded in all the cases with 0, 1, 2 and 3 to represent negative, weak positive, moderate positive and strong positive staining respectively. Care was taken to decrease the subjectivity by ensuring a) two observations per field area of slide and b) by intra-lesional comparison with a positive control[31].Data was entered into SPSS version 21 and descriptive statistics were determined.

RESULTS

In this study most common age group affected was 41-60 years age (40%), cases of ADCC were more common in female as compared to male (54%) Expression of BCL-2 was strongly positive in all cases of ADCC. In major salivary gland parotid glands was the most common site while in minor salivary glands most common site was palate. Majority cases reported as excisional biopsy (54.3%) with size 2-5cm (68.8%). Histopathologically 19 cases (54%) were categorized as high grade tumor. All cases showed expression of BCL-2 irrespective of the grade of the tumor.

Table No.1: Different Immunostains and their expression in Adenoid Cystic Carcinoma reported in different studies

Expression of different Immunostains in ADCC			
Author name	**Marker**	**Tumor**	**Remarks**
Zhang et al., 2018[12]	Cathepsin D	ADCCs	74.1% expressed
Kintawati et el, 2017[13]	Ki67	ADCCs	As grade is increasing expression of Ki-67 is also increasing.
Iyogun et el., 2017[14]	Ki67, SMA	ADCCs	Both markers expressed strong positive expression (75% cases)
Fujii et el.,2017[15]	Ki67,MYB, MYC	ADCCs	High Ki-67 index: 24.2% cases MYB expression: 51.5% MYC expression: 63.3%
Bu et el.,2015[16]	Ki67,Cyclin D1, CD147, Slug,Survivin	ADCCs	strong expression of ki67in all growth patterns
Al-Azzawi, 2013[17]	Ki67, p53	ADCCs	Ki67 40 %; p53 aberration 73.3%.
Salehinejad et al., 2011[18]	HER2/Neu	ADCCs	46 % over expression of HER2/neu; significant in grades of ADCC.
West et al., 2011[19]	Myb	ADCCs	Myb can use to differentiate ADCC from its histology mimics.
Edwards et al., 2003[20]	C-KIT	ADCCs, PLGAs	No role in differentiating between ADCC and PLGA, MA
Penner et al., 2002.[21]	C-kit, Galectin-3	ADCCs	C-kit is 100 % in ADCC; Gelectin -3 in ADCC is 88.8 %
Tsai et. el,2018[22]	BCL-2 (BLM-s)	ADCCs	BCL-2 (BLM-s) shows a strong positive expression (nuclear staining) in ADCC
Zhu et el. 2018[23]	BCL-2	ADCCs	31 out of 60 cases (51.67%) were positive for BCL-2
Jiang, 2014[24]	BCL-2	ADCCs	60% positive expression in ADCC
Meer et al., 2011.[25]	BCL-2	ADCCs; PLGAs	High expression in the solid and cribriform patterns of ADCC
Xie et al., 2010[26]	BCL-2	ADCC	Prognostic role in ADCC.
Al-Rawi et al., 2010[27]	BCL-2	PA,MEC, ADCC	High expression was observed with greater size, higher grades and greater degree of invasion.
Carlinfante et al.,2005[28]	BCL-2	ADCC	High expression of BCL-2 90%.
Norberg-Spaak et al., 2000[29]	BCL-2	ADCC	No significant association was seen between BCL-2 and grades of ADCC
Soini et al., 1998[30]	BCL-2	Salivary glands tumors (SGTs)	More expression of BCL-2 in Benign than malignant (SGTs).

Table No.2: Clinicopathological Characteristic of Adenoid cystic Carcinoma in Number (Frequency) and Percentage

Clinicopathological characteristics of ADDC	Number (f)	%age
Age		
20- 40	10	28.6
41-60	14	40.0
61-80	11	31.4
Total	35	100.0
Gender		
Male	16	45.7
Female	19	54.3
Total	35	100.0
Hospital		
Mayo hospital	15	42.9
Lahore General	9	25.7
de'Montmorency College of Dentistry/ PDH,	11	31.4
Total	35	100.0
Site		
Parotid Gland	13	37.1
Submandibular Gland	3	8.6
Sublingual Gland	2	5.7
Minor salivary gland on palate	10	28.6
Minor salivary gland on labial mucosa	2	5.7
Minor salivary gland on Buccal mucosa	5	14.3
Total	35	100.0
Laterality		
Right	10	28.6
Left	25	71.4
Total	35	100.0
Specimens		
Incisional	12	34.3
Excisional	19	54.3
Resection	4	11.4
Total	35	100.0
Size		
<1cm maximum diameter	1	2.9
1cm to 2 cm maximum diameter	4	11.4
2.1-5cm	24	68.6
> 5 cm in maximum diameter	6	17.1
Total	35	100.0
Mass		
Solid	35	100
Grade		
Low	4	11.4
Intermediate	12	34.3
High	19	54.3
Total	35	100.0
Expression of BCL-2		
+++ strong positive [staining in >50% of neoplastic cells]	35	100.0
Grades and +++ strong positiveBCL-2 expression		
Low grade	4	11.42
Intermediate grade	12	34.28
High grade	19	54.28
Total	35	100

Table No.3: Comparison of BCL-2 Expression in ADCC with Different Studies

Sr. No	Authors Names & Years		Current Study
1	**Jiang et al., 2014[24]**		
	ADCC (n)	35	35
	BCL-2 expression	ADCC 60%	All cases of ADCC Showed expression100 %
3	**Manjunatha et al., 2011[32]**		
	ADCC (n)	21	35
	BCL-2 expression	All cases expressed with varying intensity: Mild 7 (33.3%), Moderate 6 (28.5%), SP 8(38%)	Strong positivity in all pattern of ADCC
4	**Meer et al., 2011[25]**		
	ADCC (n)	29	35
	BCL-2 expression	High positivity in solid and cribriform pattern	Strong positivity in all pattern of ADCC
5	**Xie et al., 2010[26]**		
	ADCC (n)	31	35
	BCL-2 expression: in both studies all cases expressed positivity of BCL-2		
6	**Al-Rawi et al., 2010[27]**		
	ADCC (n)	22	35
	BCL-2 expression	90 %	100 %
7	**Carlinfante et al., 2005[28]**		
	ADCC (n)	21	35
	BCL-2 expression	ADCC expressed 90%	ADCC expressed 100 %
8	**Norberg-Spaak et al., 2000[29]**		
	ADCC (n)	31	35
	BCL-2 expression	Weak, intermediate positive and strong positive cases were found	All cases were strong positive
9	**Soini et al., 1998[30]**		
	BCL-2 expression	However all cases of ADCC did not show strong positive expression	Strong positivity in all pattern of ADCC

ADCC: Adenoid cystic carcinoma, MEC: mucoepidermoid carcinoma, PLGA: polymorphous Low grade adenocarcinoma, BSGT: Benign Salivary Gland tumors, MSGT: Malignant salivary Glands Tumors, SP: Strong positive, IP: Intermediate Positive, WP: Weak positive

DISCUSSION

A study was published in 2014 by Jiang et al. (2014)[24] aiming to determine the expression of BCL-2 in ADCC. Expression of BCL-2 was 60% in ADCC in a total sample of 35 cases. In the current study all cases of ADCC expressed positivity of BCL-2 as strong positive

while in Jiang's[24] study it was only 60 %. Manjunatha et al., (2011)[32] determined expression of BCL-2 in both benign and malignant SGTs as 57% and 78% respectively. In their study as well as in the current study all cases of ADCC were consistently positive for BCL-2. Carlinfante et al., (2005)[28] reported a high expression of BCL-2 (90%) in ADCC. Current study showed similar but somewhat higher expression of BCL-2.

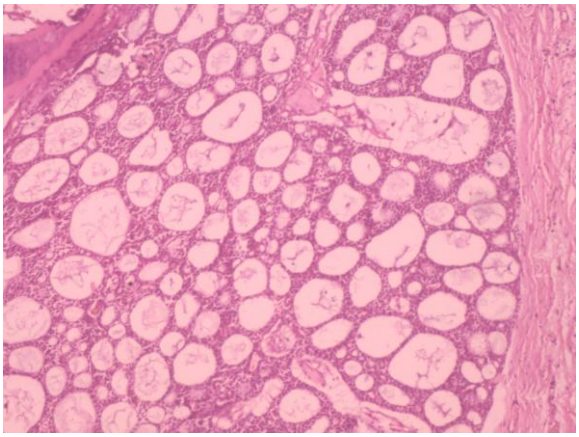

Figure No.1: H & E staining of intermediate grade Adenoid cystic carcinoma showing the cribriform pattern (X100)

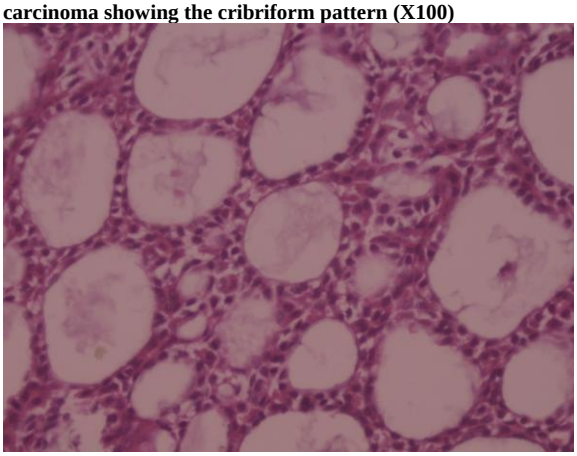

Figure No.2: H & E staining of intermediate grade ADCC showing the cribriform pattern(X400).

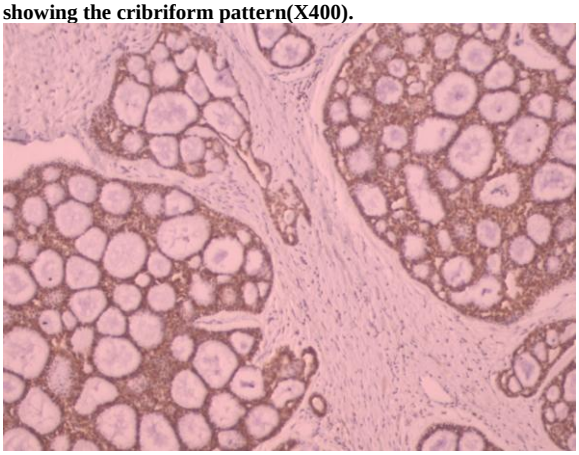

Figure No.3: BCL-2 immunostaining of Intermediate grade ADCCshowing strong positive expression (X100).

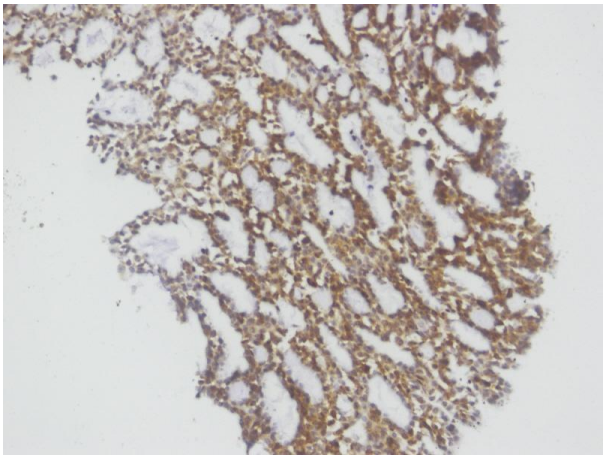

Figure No.4: BCL-2 immunostaining of intermediate grade ADCC showing strong positive expression (X200)

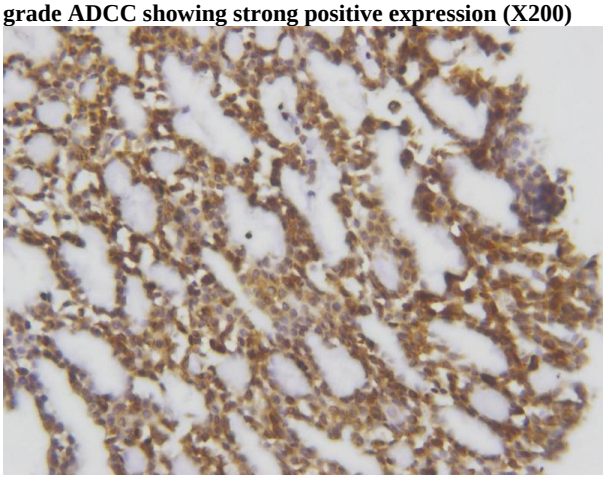

Figure No.5: BCL-2 immunostaining of intermediate grade ADCC showing strong positive expression (X400)

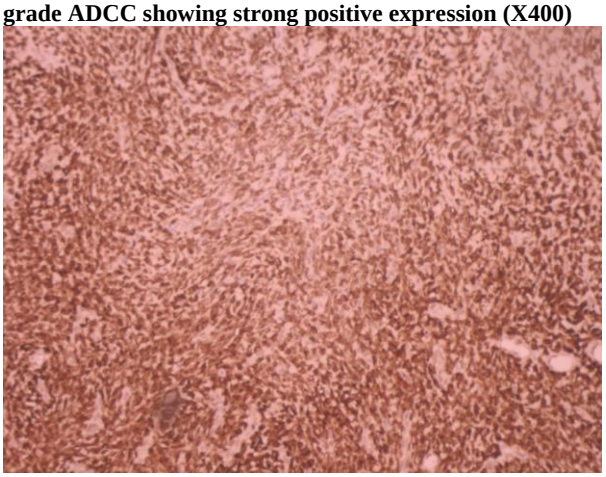

Figure No.6: BCL-2 immunostaining, control in tonsil showing strong positive expression (X100)

All cases of ADCC expressed BCL-2 expression but there was no weak and moderate positive staining group in this study. All cases of ADCC showed strong positive expression of BCL-2 in present study which is in contrast to Soini's[30] study where all cases of ADCC did not express strong positive expression. In another study by Norberg-Spaak et al. (2000)[29], biological

behavior of ADCC was determined in its three subtypes, solid, cribriform, and tubular, by using BCL-2. However, BCL-2 expression did not show any correlation with grade of ADCC and results were statistically insignificant (p =0.49). In our study, results are contrary to Norberg's study, where all types of ADCCwere strongly positive for BCL-2 expression.

There were certain limitations of the current study which might have caused thedifference in results, such as a limited sample size, owing to the rare nature of the tumor. Similarly, there was an unequal distribution of the numbers and grades of these tumors. The distribution of the tumors was also unequal in terms of the site of tumor.Further studies with larger sample size are recommended to find out the preciserole of BCL-2 in ADCC.

CONCLUSION

Diagnosis of ADCCon routine staining (H&E) is difficult in some cases due to different histopathological variants which mimics with variants of other malignant salivary gland tumors such as Polymorphous Low Grade Adenocarcinoma. The BCL-2 protein has shown a strong positive expression in ADCC, regardless of grade.Its definitive role needs to determine on large sample size. Positive expression of BCL-2 in this tumor can help in predicting the behavior of this tumor. BCL-2 has definitive role in the carcinogenesis of ADCC of salivary gland tumor. In addition, molecular target therapy against BCL-2 can be planned in future for its better management.

Author's Contribution:

Concept & Design of Study:	Faiz Rasul
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Data Analysis:	Muhammad Talha Haseeb, Rozina Jaffar
Revisiting Critically:	Faiz Rasul, Ayesha Amjad, Zainab Rizvi
Final Approval of version:	Faiz Rasul

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Plain E-Ray to diagnose Acute Abdomen

Diagnostic Accuracy of Plain Abdominal Radiographs Compared with Per-Operative Findings in Patients Presenting with Acute Abdomen

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ABSTRACT

Objective: To evaluate the efficacy of plain x ray abdomen to diagnose acute pain in abdomen.
Study Design: Retrospective study.
Place and Duration of Study: This study was conducted at the Surgical Department, PMC Hospital Nawabshah from July 2017 to June 2018.
Materials and Methods: This is study of total 69 patients included both gender, 40 (57.9%) were female and 29(42.02%) male suffering from intestinal obstruction, gastrointestinal perforation, renal stones, foreign bodies, and acute appendicitis.
Results: Findings found on plain X ray abdomen were compared with per operative findings. 92% to 98% X ray findings matched with operative findings. It detected the site of abnormality and also the organ involved.
Conclusion: It has helped a lot to detect the site, level, cause and also remedy of acute abdominal pain. The per-operative findings confirmed that majority of our decisions were accurate.
Key Words: X Ray Abdomen, gastrointestinal perforations, Acute Abdomen, Renal Stone.

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INTRODUCTION

Acute abdomen has remained a dilemma for surgeons to resolve for last many centuries. To sort out the exact underlying cause of acute pain in abdomen is still challenging despite the advanced radiological investigations. The high cost of Computed Tomography (CT scan) and Magnetic Resonance Imaging (MRI) make them unavailable in every setup. Therefore it is obligatory to investigate acute abdomen by the ideal, cheap, and easily accessible imaging tool having diagnostic accuracy for the proper management of the patients.[1] In this regard, plain abdominal radiograph ensures balance between diagnostic accuracy and management plans. It has also the lower radiation exposure as well as cost.[2]

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Traditionally, imaging investigations to diagnose acute abdomen commence with plain radiographs of abdomen and pelvis taken in different views. These are deemed to be the initial and the best investigation in all setups from primary to tertiary ones[3, 4.]

In 1895, X-Ray was first discovered and it was Wilhelm Rontgen who unveiled the use of X-Rays for the medical purpose.[5]

It is observed that the most common complain of surgical patients registered in emergency department is abdominal pain and accounts for 4-10% of total emergency department visits. So it is mandatory to make accurate decision to make early surgical interventions if required.[6]

The conventional radiography is the preliminary investigation in diagnosis of gastrointestinal perforations because I ml of free gas on upright or left lateral decubitus abdominal plain films can also be detected. The increase in frequency of missed cases is solely due to in expertise technique[7, 8]. The intestinal obstruction accounts for 7% of all acute abdominal conditions. Imaging in intestinal obstruction tells the location, level of obstruction and also cause of obstruction. Plain X Ray Abdomen (Erect/Supine) is the standard tool to diagnose the disease. Of all, 50%-60% findings are diagnostic, indifferent in 20% to 30% and misleading in 10-20% of patients.

Plain abdominal as well as chest radiographs are sensitive in only 50% to 70% of cases despite the fact

that it is deemed to the first line of investigation in conditions of gastric, small bowel and large bowel perforations. Different radiological findings are used to denote distribution of free intra peritoneal gas like Rigler sign, football sign and triangle sign.[9]

A plain X Ray KUB (Kidney Ureter and Bladder) detects urinary tract stones size, site, type, shape of stones in renal system. It has sensitivity from 44% to 77% and specificity of detecting stones from 80% to 87%[10]. The standard investigation to localize ingested foreign bodies is the plain X-Ray if patient is symptomatic because most of them pass from gastrointestinal tract easily without damaging structures. In these cases, the sensitivity, specificity and accuracy of plain X Rays is 90%, 100% and 100% respectively. Acute appendicitis is rarely seen on the plain abdominal radiographs. Right Iliac Fossa calcifications can represent appendicoliths.[11]

The rationale of our study is to find out the accuracy of plain X Ray abdomen in the diagnosis of acute abdominal conditions in surgical practice so that patients may get benefit from this cheap imaging modality.

MATERIALS AND METHODS

A retrospective study of 69 patients was conducted at Surgical Department of Peoples Medical College Hospital from July 2017 to June 2018. All patients were admitted through Surgical Outpatient Department (OPD) and emergency Department. The patients suffering from acute abdomen were received; descriptive history and thorough abdominal, pelvic, inguinoscrotal and back examination in addition to digital rectal examination (DRE) were done. The provisional diagnosis was made and patient was advised to get plain X-Ray abdomen (Erect/Supine) to reach the diagnosis. After the plain abdominal radiograph, diagnosis was made and managed accordingly. Patients of intestinal obstruction, gastrointestinal perforations, acute appendicitis, renal stones and foreign body were prepared for the required surgical procedures according to the diagnosis. Apart from the routine biochemical investigations including viral markers, cardiac and anesthesia fitness was obtained. Patients along with attendants were counseled regarding the procedures, per-operative and postoperative complications. After taking consent from the patient and their relatives, patients were shifted in Operation Theater and the procedures were performed accordingly. Patients with diagnosis of ruptured ovarian cyst or uterine perforations were excluded and referred to Gynecology/obstetrics ward. Patients of aged 10 years o less than 10 were also excluded.

RESULTS

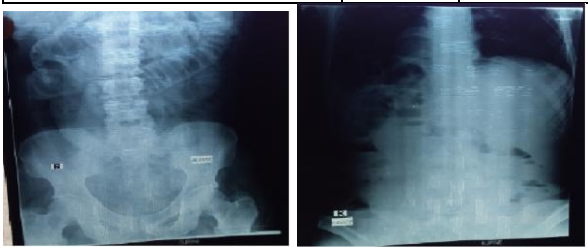
This is a retrospective study of one year from July 2017 to June 2018. Total 69 patients were admitted and study was conducted at Surgical Department of Peoples Medical College Hospital. This study included only limited conditions of acute abdomen. 33 (47.8%) presented with intestinal obstruction, 25 (36.2%) came with diagnosis of gastrointestinal perforation, 7 (10.1%) were diagnosed as renal colic, 3 (4.3%) were of acute appendicitis and 1 (1.4%) was suffering from foreign body as is shown in table No.1 below;

In 33 cases of intestinal obstruction, x ray abdomen (Erect supine) showed multiple air fluid levels at the center as well as periphery of X-Ray according to the cause. Per operatively, the findings of x ray abdomen Plain matched and showed the accuracy of diagnosis of this investigation. Of 33, 20 patients were found to be suffering from small and large bowel obstruction, 5 with tuberculosis stricture, 3 with Sigmoid Volvulus, 3 with omental bands and 2 having left sided colonic masses. The diagnostic accuracy of Plain abdominal radiograph in intestinal obstruction was 97%.

In 25 patients of gastrointestinal perforations, 18 were of illeal typhoid perforations, 3 duodenal, 1 gastric, 1 jejunal perforation and only 2 patient's X Ray Plain showed no any perforation but per operatively these were found to be suffering from tiny sealed off illeal perforations. The diagnostic accuracy of the abdominal X-rays was 92% (Chart No.1).

Table No.1: Diagnosis on basis of plain X Ray Abdomen

S. No.	Diagnosis	No of Cases	Percentage
1	Intestinal obstruction	33	47.8%
2	Gut perforation	25	36.2%
3.	Renal calculi	7	10.3%
4.	Foreign body	1	1.4%
5.	Acute Appendicitis	3	4.3%
Total		**69**	**100%**



X-ray No.1: Plain Abdominal X-ray

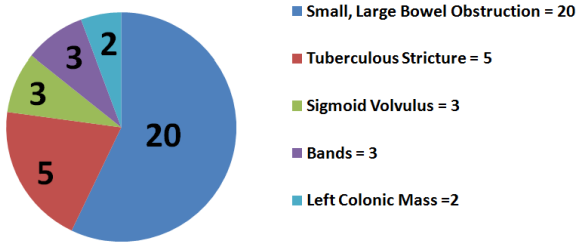
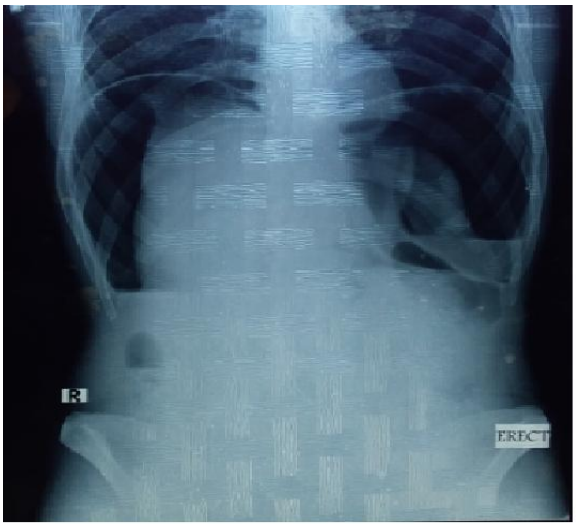


Chart No.1: Peroperative findings of patients of bowel obstruction

In cases of renal calculi, and foreign body, the accuracy of plain X-Ray was found to be 100%. But in case of acute appendicitis, the accuracy was very limited (Chart 2.)



Xray No.2:

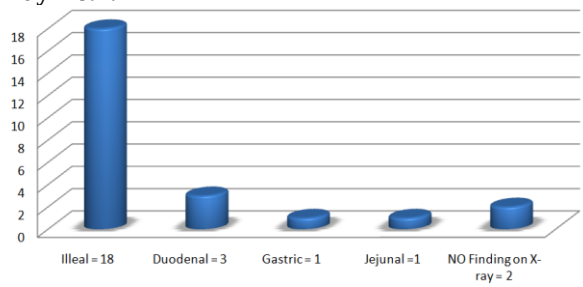


Chart No.2: Peroperative Findings Of Pneumo-peritonium

DISCUSSION

Plain X Ray Abdomen occupies an important place in surgical practice in the diagnosis of abdominal conditions. Seldom is the Surgeon found in the world who hasshun the utilization of this imaging investigation for the purpose of diagnosis of surgical abdomen. A study of 35 years from 1972 to 2007 in various stages conducted in renowned American university showed the decreasing use of Plain x-Ray due to the excessive use of Ultrasound and CT Scan but it proved that still Plain abdominal radiograph was used as primary investigation of choice in 21% of patients. In developing countries Like Pakistan where not all people has easy access to CT scan, abdominal radiograph is still considered to be and used as initial and cheap modality of choice in most of acute abdominal conditions. Time spent for X ray abdomen is less as compared to CT scan. The patient wasted 6.64 hours for latter investigation.[12]

Another study conducted on the diagnostic accuracy of plain abdominal radiography showed that in 502 (50%) patients out of 1021, the diagnosis was accurate according to abdominal radiograph. But in our study the ratio is too high ranging from 92% to 97% .[13]

Several other studies have detected the 77% of all advised plain abdominal radiographs appeared to be normal. This is not so in our study because in all cases of intestinal obstruction, renal stones, postoperative adhesions and foreign body, diagnostic accuracy was 97%. But in cases of gut perforation, it was 92%.[14]

In one study, the sensitivity of the plain radiograph in abdominal conditions was 74% and changes in decision after other investigations were done only in 16 patients out of 72. This study showed higher similarity between clinical evaluations and plain radiograph of abdomen.[15]

In a study, left lateral decubitus showed pneumoperitonium in 96% patients, chest radiographs in 85% and supine and upright abdominal radiographs in 56% and 60% respectively. Another study detected pneumoperitonium in 83% of all patients with documented visceral perforation.[16] In our study, the ratio of accuracy in these cases was 92%.Comparative study conducted to detect pneumoperitonium by chest, abdominal and ultrasound showed that 120 patients out of 126 confirmed the findings of plain abdominal radiography intra operatively. In Urological study, the plain radiography showed sensitivity of 45% and specificity of 77% for the detection of Ureteric and kidney stones.[17]

In our study, the accuracy plain radiographs in the diagnosis of acute abdominal pain conditions are quite high and satisfactory. Though it was somewhat misleading, most of the diagnosis matched with per operative findings. In cases of acute appendicitis, fecolith was shown on X-Ray abdomen.

CONCLUSION

The role of plain x ray abdomen in acute abdomen is satisfactory in our study. Despite unavailability of CT scan in emergency, preoperative findings detected matched with findings of Plain X Ray abdomen. Our study showed the higher accuracy of plain abdominal X-Ray in the diagnosis of gastrointestinal and urological conditions in our setup.

Author's Contribution:

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Final Approval of version:	Mashooq Ali Khowaja

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Cardiovascular Risk Factors in Rural Malays and Aborigines in Perak, Malaysia; An Alarming Situation

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ABSTRACT

Objective: Cardiovascular disease (CVD) is a leading cause of morbidity and mortality worldwide. In our study, we determined the prevalence and clustering of CVD risk factors in adult, non-diabetic, rural Malays and Orang Aslis in Perak, Malaysia.

Study Design: Community based cross sectional study

Place and Duration of Study: This study was conducted at the Perak state, Malaysia from March 2013 to December 2013.

Materials and Methods: Study included Orang Aslis and Malays in rural communities in Perak including males and females ≥18 years of age. Two districts selected randomly from Perak. One Orang Asli and one Malay village were taken from each district. Data was collected from maximum number of people during multiple visits. Sick, debilitated, known diabetics, unwilling to participate or unable to communicate were excluded. We collected data about lipid profile and anthropometric values, adapting standard protocol.

Results: Total 274 participants, 93 males and 181 females. Overall; overweight/obese 47.8%, abdominal obesity 22.4%, hypertension 24.8%, hypercholesterolemia 44.7%, high LDL 42.3%, low HDL 51.3%, high triglycerides 30.0%, smokers 22.8%. Likelihood of hypertension, hypercholesterolemia and raised LDL was significantly higher in ≥45 years age. General and central obesity was significantly more likely in Malays. Majority had multiple risk factors.

Conclusion: There was high prevalence and clustering of CVD risk factors in our study population. This may indicate epidemiological transition to modern life style in these rural communities.

Key Words: Cardiovascular disease, Malaysia, Malays, Orang Asli

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INTRODUCTION

Incidence of cardiovascular disease (CVD) is increasing[1]. Data from 188 countries shows that the number of deaths due to CVD increased by 41% during 1990-2013[2]. Aging population will become triple by 2050, especially in Western Pacific Region, increasing the burden of CVD to half of the global burden in this area[3]. Each year 38 million people die due to non-communicable diseases (NCD), three quarters in low/middle-income countries. CVD accounts for most NCD mortality.

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Tobacco, sedentary lifestyle, alcohol misuse and unhealthy diet may increase mortality from NCD[1]. According to NHMS, in ten years prevalence of hypertension, diabetes mellitus (DM) and obesity increased from 29.9% to 42.6%, 8.3% to 14.9% and 4.4% to 14% respectively[4]. Coronary heart disease risk factors include smoking, increased low-density lipoproteins (LDL), decreased high-density lipoproteins (HDL), hypertension, DM, sedentary life, obesity and unhealthy diet while the risk markers are poor socioeconomic status, increased prothrombotic factors, inflammatory markers and blood homocysteine along with psychological factors[5].

Epidemiological transition is observed with socioeconomic development and urbanization, changing morbidity and mortality patterns from predominantly nutritional deficiencies/infectious diseases to degenerative problems like CVD, DM and malignancies[6]. This epidemiological transition may be marked in rural Malaysia especially among the aborigines (Orang Asli/OA). We studied the prevalence of CVD risk factors among the rural population including OA. The results may help on allocation of resources to improve cardiovascular outcome and to avoid health inequalities between urban and rural.

MATERIALS AND METHODS

This cross-sectional study was conducted from March to December 2013. It included apparently healthy Malays and OA from rural Perak, both males and females ≥18 years of age. We selected healthy people without an apparent illness. Acute illnesses can affect the lipid profile.[7] Diagnosed cases of DM were not included. Most of the studies on CVD risk factors (RF) included diabetics but we excluded those with diagnosed DM. We also excluded those not willing to participate. Using cluster sampling, two districts, Hulu Perak and Batang Padang, were chosen randomly from Perak state. Two villages, one Malay and one Orang Asli, were taken randomly from these two districts. People in the localities were informed well in advance about the visits and they gathered at selected place for data collection.

Sample size calculation: Assumed prevalence of hypertension and hypercholesterolemia in Malays was 34% and 38% respectively (confidence level 95%, allowable error 8) giving sample size of 135 and 141. For OA presumed prevalence was 30% each, and calculated sample size was 126.[8,9] Informed consent was obtained before data collection.

Following data was collected:

(i) Anthropometry: We measured *Height* (centimetres) using portable wall mounted Stadiometer (Seca body meter 206) adapting standard method[10]. *Weight* (kilograms) was taken by "Seca 762 personal scale", using standardized method[10]. Body mass index (BMI) was calculated by standard formula[10]. It was labelled high (≥25 kg/m^2) according to WHO criteria.[11,12] *Waist circumference* (WC) was measured at the central line between costal margin and iliac crest. ATP III criteria was used for the classification of abdominal obesity (men>102cm, women>88cm).[13]

(ii) Blood pressure (BP): Measured by electronic device (OMRON automatic blood pressure monitor, model MX3). Hypertension was classified according to JNC VII report.[14]

(iii) Fasting blood glucose was measured by "Accucheck glucometer ROCHE" after 12 hours fast and 2 hours Post-prandial glucose measured in those having impaired Fasting glucose (IFG: ≥ 6.1mmol/L).

(iv) Total cholesterol (TC), HDL and Triglycerides (TG) were measured after 12 hours fast. Values for high/abnormal levels were as following:

TC ≥5.2 mmol/L; LDL ≥3.4 mmol/L; HDL, Males <1 mmoL/L; Females <1.3mmoL/L; Triglycerides >1.7mmol/L.[13,15,16] LDL was calculated by Fried wald equation[17]

(v) Data about age, gender, ethnicity, education, occupation and smoking was collected by using a questionnaire.

Data was analysed by using Statistical Package, Social Sciences software (SPSS17), performing Independent T test, Chi Square, and multivariate Logistic Regression analysis. Missing data was not included in calculation. We considered P value <0.05 as statistically significant. Ethic committee, Royal College of Medicine Perak, approved the study.

RESULTS

Demographic profile: Total 274 participants (133 OA, 141 Malays) majority being females (overall 66.1%, among OA 72.9%, among Malays 59.6%). Overall, <45 years were 63.1% (among OA 78.2%, among Malays 48.9%). Overall mean age was 40.7 years (OA 35.5, Malays 45.5). Majority were unemployed (51.1%) followed by those who were self-employed (28.8%). Maximum people were educated up to secondary school (n=148; 54%) followed by those educated to primary school (n=70; 25.5%).

Means of cardiovascular risk factors: In <45 years age group, most cardiovascular RF had higher mean values in Malays. However, in ≥45 years, 6 out of 9 RF had higher values in OA. In males and females SBP, DBP, FBG and HDL showed significant differences. (Table 1).

Overall prevalence of risk factors: High BMI 47.8%, abdominal obesity 22.4%, hypertension and newly diagnosed DM/IFG 24.8%/4.7% respectively, hypercholesterolemia and low HDL 44.7% and 51.3% respectively, high LDL and triglycerides 42.3% and 30.0% respectively and smoking in 22.8%. (Table 2)

Prevalence of risk factors in different socio-demographic groups: Except general and abdominal obesity and low HDL, RF had higher prevalence in males. Hypertension, hypercholesterolemia and raised LDL were significantly more prevalent in older people. Interestingly prevalence of obesity, low HDL and smoking was high in youngsters. (Table 2)

Prevalence according to ethnic groups: In < 45 years, all the CVD risk factors, except smoking, were more prevalent in Malays ($p < 0.05$ in overweight/obesity, hypertension and raised TG). However, in older age 6 RF were more prevalent in OA. (Table 3)

Multivariate Logistic regression analysis: Hypertension, hypercholesterolemia and high LDL were significantly more likely in ≥45 years age group. Overweight/obesity was significantly more likely among Malays. Abdominal obesity was significantly more likely in in females and Malays. (Table 4)

Clustering of risk factors: Overall, two and four RF were found in 22.3% and 18.6% respectively and 8% had ≥ 6 RF. In <45 years, 2 RF showed highest prevalence (23.7%) followed by four RF (19.1%). In ≥ 45 years, 19.8% had two, 17.8% had four and 9.9% had ≥6 RF. Clustering of <3 RF was high in young while >4 RF showed higher prevalence in old. In men, 20.4% had two, 25.8% had four and 8.6% had ≥6 RF. In women, 23.2% had two, 14.9% had four and 7.7% had ≥6 RF. Clustering of ≥4 RF in men was higher than women. In OA maximum people had two while in Malays maximum had four RF. Clustering of ≤3 RF was more in OA but >3 RF was more in Malays. (Figure 1)

Table No.1: Comparison of Mean values of CVD risk factors in ethnic groups

Cardiovascular Risk Factors	Overall	Groups according to ethnicity mean (±standard deviation)		P value
		Orang Asli (133)	Malays (141)	
< 45 years of age				
BMI	25.3 (5.2)	24.4 (4.5)	26.8 (5.8)	0.002
WC	82.0 (12.1)	80.1 (11.1)	84.8 (13.0)	0.014
SBP	119.1 (14.1)	116.6 (13.4)	122.8 (14.3)	0.006
DBP	75.5 (10.7)	74.1 (10.4)	77.64 (10.9)	0.033
FBG	3.7 (1.1)	3.5 (0.9)	3.9 (1.3)	0.014
Total Cholesterol	4.9 (1.0)	4.8 (1.0)	5.0 (0.9)	0.102
LDL	3.1 (0.9)	3.0 (0.9)	3.2 (0.9)	0.178
HDL	1.2 (0.3)	1.2 (0.3)	1.2 (0.3)	0.082
Triglyceride	1.293 (0.9)	1.2 (0.7)	1.5 (1.0)	0.023
≥ 45 years				
BMI	24.8(5.3)	22.3 (4.8)	25.8 (5.2)	0.003
WC	84.9 (16.0)	79.2 (12.5)	87.3 (16.8)	0.021
SBP	133.6 (20.5)	133.9 (17.8)	133.5 (21.6)	0.924
DBP	82.6 (12.6)	84.7 (13.3)	81.8 (12.4)	0.309
FBG	4.0 (1.1)	3.7 (1.0)	4.1 (1.1)	0.078
Total Cholesterol	5.5 (1.0)	5.6 (1.1)	5.5 (1.0)	0.609
LDL	3.5 (1.0)	3.6 (1.0)	3.5 (1.0)	0.558
HDL	1.2 (0.3)	1.1 (0.3)	1.2 (0.3)	0.506
Triglyceride	1.8(1.7)	2.1 (2.3)	1.6 (1.4)	0.275

Table No.2: Prevalence of CVD risk factors in various demographic groups **n: Number**

Cardiovascular Risk Factors	Overall n (%)	Males n (%)	Females n (%)	P - value	< 45 years n (%)	> 45 yrs, n (%)	P – value
Overweight and obesity	131(47.8)	39 (41.9)	92 (50.8)	0.163	83 (48)	48 (47.5)	0.942
Abdominal Obesity (n=263)	59 (22.4)	6 (6.5)	53 (31.0)	0.000	37 (22.7)	22 (22.0)	0.895
Hypertension (n=270) (≥140/90 mmHg)	67 (24.8)	29 (31.5)	38 (21.3)	0.067	27 (15.9)	40 (40.0)	0.000
Newly diagnosed DM/IFG	13(4.7)	8 (8.6)	5(2.8)	0.031	6 (3.5)	7 (6.9)	0.193
Hypercholesterolemia (n=273)	122(44.7)	43 (46.2)	79 (43.)	0.722	64 (37.2)	58 (57.4)	0.004
High LDL (n=272)	114(42.3)	40 (43.0)	75 (41.9)	0.587	61 (35.5)	54 (54.0)	0.011
Low HDL (n=273)	140(51.3)	47 (50.5)	93 (51.7)	0.860	90 (52.3)	50 (49.5)	0.653
High TG (n=273)	82 (30.0)	35 (37.6)	47 (26.1)	0.049	47(27.3)	35 (34.7)	0.202
Cigarette smoking (n=272)	62 (22.8)	51 (56.0)	11 (6.1)	0.000	41(23.8)	21 (21.0)	0.803

Table No.3: Prevalence of CVD risk factors according to ethnicity * Fisher exact test applied

Cardiovascular Risk Factors	Overall	Groups according to ethnicity numbers(percentage)		
		Orang Asli	Malays	P value
< 45 years of age				
Overweight and obesity	83(48.0)	43(41.3)	40(58.0)	0.032
Abdominal Obesity	37(22.7)	17(17.9)	20(29.4)	0.083
Hypertension	27(15.9)	11(10.9)	16(23.2)	0.031
Newly diagnosed DM/IFG	6(3.5)	2(1.9)	4(5.8)	0.173*
Hypercholesterolemia	64(37.0)	36(34.6)	28(40.6)	0.541
High LDL	61(35.3)	33(31.7)	28(40.6)	0.370
Low HDL	90(52.3)	48(46.6)	42(60.9)	0.066
High TG	47(27.3)	22(21.4)	25(36.2)	0.032
Cigarette smoking	41(23.7)	27(26.0)	14(20.3)	0.338
≥ 45 years of age				
Overweight and obesity	48(47.5)	8(27.6)	40(55.6)	0.011
Abdominal Obesity	22(22.0)	5(17.2)	17(23.9)	0.463
Hypertension	40(40.0)	15(53.6)	25(34.7)	0.084
Newly diagnosed DM/IFG	7(6.9)	2(6.9)	5(6.9)	0.993*
Hypercholesterolemia	58(57.4)	19(65.5)	39(54.2)	0.297
High LDL	54(53.5)	18(62.1)	36(50.0)	0.126
Low HDL	50(49.5)	17(58.6)	33(45.8)	0.245
High TG	35(34.7)	13(44.8)	22(30.6)	0.173
Cigarette smoking	21(20.8)	10(34.5)	11(15.3)	0.086

Table No.4: Multivariate Logistic regression analysis, predicting CVD risk in different groups

CVD Risk factors	Age (years)		Sex		Race	
	Less than 45	45 and above	Female	Male	Orang Aslis	Malay
Overweight and Obesity OR (95% CI)	Ref	0.77 (0.454-1.334)	Ref	0.62(0.36-1.05)	Ref	2.49 (1.46-4.27) P<0.05
Abdominal Obesity OR (95% CI)	Ref	0.97 (0.49-1.89)	Ref	0.13 (0.05-0.33) P<0.05	Ref	2.15 (1.10-4.19) P<0.05
Hypertension OR (95% CI)	Ref	3.403 (1.851 to 6.257) P<0.05	Ref	1.426 (0.784 to 2.593)	Ref	1.030 (0.553 to 1.919)
Newly diagnosed DM/IFG OR (95% CI)	Ref	1.40 (0.41-4.83)	Ref	3.00 (0.93-9.64)	Ref	1.95 (0.51-7.49)
Hypercholesterolemia OR (95% CI)	Ref	2.31(1.36-3.93) P<0.05	Ref	0.99 (0.59-1.66)	Ref	0.99 (0.58-1.69)
High LDL OR (95% CI)	Ref	2.08 (1.22-3.53) P<0.05	Ref	0.94 (0.56-1.60)	Ref	1.07 (0.63-1.82)
Low HDL OR (95% CI)	Ref	0.91 (0.53 to 1.56)	Ref	0.94 (0.56 to 1.59)	Ref	1.028 (0.60 to 1.73)
High TG OR (95% CI)	Ref	1.37 (0.77 to 2.43)	Ref	1.63 (0.93 to 2.856)	Ref	1.004 (0.56 to 1.78)

Bold digits show significant difference CI: Confidence interval OR: Odd ratios Ref: Reference values

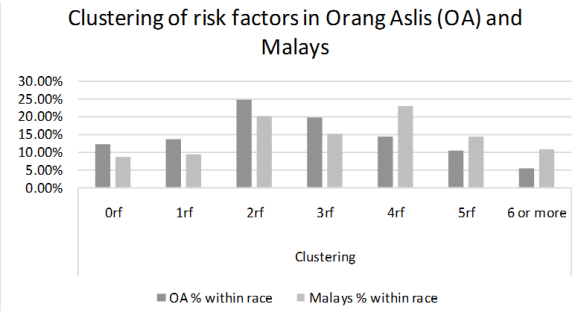

Figure No.1: Clustering of risk factors in ethnic groups rf: Risk factors

DISCUSSION

We observed three major findings. First: Overall prevalence of cardiovascular RF was high suggesting an epidemiological transition. Prevalence was different from some studies in Malaysia and other countries, probably due to difference in the developmental status. Generally, socioeconomic development leads to high prevalence of cardiovascular RF. In a similar population in Dengkil, Selangor, the prevalence of hypertension was 26.8%, quite comparable to our study but obesity was less prevalent (11.4%)[18]. In a predominantly Malay and more developed population in Kuala Selangor, the prevalence of abdominal obesity (51.2%), hypertension (51.2%) and smoking (25.2%), were higher than our study[19]. A study from rural Vietnam showed that prevalence of hypertension (20.5%) was comparable to our study[20]. In a rural Indian population, hypertension, obesity and hyperlipidaemia were attributed to sedentary lifestyle[21]. In rural Tamil Nadu, 35.2% were hypertensive, 35.8% overweight/obese and 15% smokers[22]. In rural Nepal, lower prevalence of hypertension (12.3%) and obesity/overweight (37.4%) may be related to high physical activity in mountainous areas[23]. However, in rural Kazakh population high prevalence of hypertension (49.9%), overweight/obesity (72.5%), smoking (60.4%) and alcohol intake (64.8%) was attributed to lower knowledge about cardiovascular RF[24]. Second, the prevalence of cardiovascular RF was higher in Malays especially with age <45. The mean BMI was significantly higher in Malays. In >45, no significant difference in mean SBP/DBP and lipid profiles was observed between two ethnicities. Other studies have shown differences between ethnic groups/races of the same district, region or country.[18-24]. The prevalence of cardiovascular RF may be related to socio-economic conditions. However, in some cases specific conditions like access to health care and health equity may influence, as demonstrated by Kazakh and Nepal studies. Third, the clustering of RF was observed in all especially Malays. According to NHMSIII survey, 14% had three or more RF, 33% had two or more and 63% had at least one cardiovascular RF[25]. Increased likelihood of hypertension and hypercholesterolemia in older age was not unusual and similar findings were shown in other reports.[11] Higher likelihood of overweight/obesity in Malays may be attributed to transition to urbanized lifestyle.

CONCLUSION

The prevalence of cardiovascular RF was high in both Malays and Orang Aslis, especially the obesity and abnormal lipid profile. This may demonstrate the epidemiological transition to modern life style. An alarmingly high rate of clustering of RF was observed in both ethnic groups. Probably a re-evaluation of epidemiology of cardiovascular RF is needed, especially in OA, which may help in health planning to prevent CVD.

Author's Contribution:

Concept & Design of Study:	Waseem Ahmad
Drafting:	Sandheep Sugathan, Sabaridah Ismail
Data Analysis:	Myint Myint Soe, Osman Ali

Revisiting Critically:	Waseem Ahmad, Sandheep Sugathan, Sabaridah Ismail
Final Approval of version:	Waseem Ahmad

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Frequency of Hepatitis B and C in Patients Receiving Dental Procedures in a Tertiary Care Hospital in District Bannu-KPK, Pakistan

Abdul Razaq[1], Mohammad Omer Khan[2], Fareed Ullah Shah[1], Mohammad Farooq[3] and Wasim Ahmad[4]

ABSTRACT

Objective: To evaluate the frequency of Hepatitis B & C in patients receiving some sort of Dental Procedures in Dentistry Department of KGN Teaching Hospital, Bannu-KPK Pakistan.

Study Design: Descriptive/cross sectional study

Place and Duration of Study: The study was conducted in Dental Block, KGN Teaching Hospital, Bannu-KPK Pakistan from 1st January 2018 to 30thJune 2018.

Materials and Methods: 198 patients were included in the study who came to dentistry department, KGN hospital Bannu for numerous types of dental procedures. Serum of these 198 patients was screened and examined for the detection of HCV Ag and HBV Ag. Rapid card diagnostic test was performed for the same. Among all these 200 samples, all rapid test positive samples were tested further by ELISA. Data was analyzed statistically using one way ANOVA.

Results: Among dental patients, the overall HBV and HCV sero prevalence was found to be 4.0% and 4.5% correspondingly. Only 1.2% patients had both the infections. No remarkable difference was observed in prevalence of HBV and HCV in both genders i.e. male and female. An increased prevalence was found in patients having an age 52-62 years (11% for HBV and HCV respectively). Among the positive patients, most were belonging to Domail and Link road Bannu area. A high prevalence of dental procedure was found in patients in comparison to control ($p \leq 0.001$) for both HCV and HBV.

Conclusion: The sero-frequency of HCV and HBV is greater in rural area of district Bannu. This high frequency is attributed to the dentistry malpractice which is being carried out in these areas. We recommend that inhabitants of the rural areas should make their regular checkup for both hepatitis B & C in order to avoid the disease.

Key Words: Elisa, dental procedure, HCV, HBV

Citation of articles: Razaq A, Khan MO, Shah FU, Farooq M, Ahmad W. Frequency of Hepatitis B and C in Patients Receiving Dental Procedures in a Tertiary Care Hospital in District Bannu-KPK, Pakistan. Med Forum 2018;29(12):29-32.

INTRODUCTION

Hepatitis is an ailment that results in the inflammation of the human liver. Its two forms, B and C are found to be deadly worldwide. This is because; its chronic and severe form results in liver cirhossis and cancer. Numerous agents contribute towards the onset of the disease including alcoholism, drugs, autoimmunity, poison and most frequently viruses.

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Severe liver dysfunctions are a result of hepatitis B and hepatitis C. Among them, hepatocellular carcinoma and liver cirhossis are most common[1]. WHO estimation demonstrates 350 million victims of chronic HBV and 170 million victims of chronic HCV around the globe. Annual death rate from HBV is 563000 and from HCV is 366000 [2].

Hepatitis is most commonly victimizes the people of certain regions including Asia, Africa, Southern Europe and Latin America[3]. The responsible media for hepatitis spread is blood and its related products, sexual mating and intrafamilial transmission. In Pakistan, the disease is transmitted majorly from contaminated needles, unhygienic medical instruments and unsafe blood transfusion, shaving with unsterilized cissors, poor and unhealthy hygiene habits, nose and ear piercing in females and dental procedures etc[4-6].

A report from PMRC (Pakistan medical and research council) argues that overall prevalence of HBV is 2.5%and that of HCV is 4.9% in common populace of the country [7].

In dental procedures, HBV or HCV present in the saliva of the carrier patient is a major cause of the disease. This is because the dental procedures and treatment causes frequent bleeding and thus it can transmit the disease viruses. Various precautions including disposable gloves, good sterilization, disposable needles etc can prevent the transmission of the disease/virus from patient to dentist, dentist to patient and patient to patient in a dentistry clinic/room etc.

There is no sufficient published data on hepatitis B and C infections in patients reported to dental clinics or dental units of the hospitals in Bannu. This study is, therefore, an attempt to find out the prevalence of the disease among the patients attending dental units for getting some sort of dental treatment. The study also highlighted the numerous types of hazards of these infections associated with dental practice either to health care professionals or the patients.

MATERIALS AND METHODS

This was a descriptive cross sectional study which was conducted at the dentistry department of KGN teaching hospital from 1st January 2018 to 30th June 2018. All of the subjects were approached to dentistry department from various units of the same hospital for gaining some surgical dental procedure or for tooth extraction. Data about the age, place and other medical conditions was gathered by conducting interview of the subjects. All the subjects were sent for blood specimen collection to the laboratory of the hospital. Samples were centrifuged at 5200 rpm for 8 minutes and serum was collected and examined for HBV and HCV surface Ag through using "Rapid card diagnostic test". All rapid test(+) samples were further analyzed by third generation ELISA technique. Statistical analysis was done using one way annova and prevalence and percentage for all variables was intended.

RESULTS

A total of 198 patients were enrolled in this study who came to the dentistry department for tooth extraction or some other dental surgical procedure. Out of 198 subjects, 58% (n=116) were male while remaining 42% (n=84) were female.

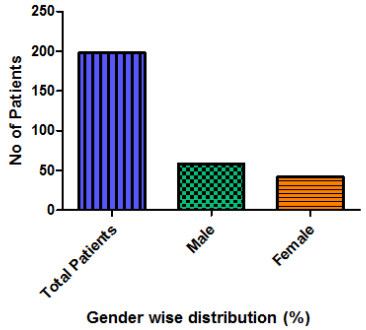

Figure No.1: Gender wise distribution of the patients

The age group was 18 to 65 years having a mean age 34 years. The prevalence of HBV and HCV was 4.0 and 4.5% respectively. The results are shown in figure 1and table 1.

Table. 1. Age wise distribution/frequency and percentage of the patients

Age (years)	Frequency	Percentage
15-20	21	10.60
21-30	72	36.36
31-40	31	15.65
41-50	47	23.73
51-60	27	13.63
Total	198	100

Statistically, no significant difference was observed among male and female. The highest prevalence was found among health care professionals and farmers. All the patient's population was divided into 5 groups and highest prevalence was found among the age group of 21-30 years. Prevalence of HBV and HCV by location is mentioned in table 2 below.

Table No. 2: Location wise HBV and HCV prevalence

Area	No of patients	HBV positive (n=8)	%age	HCV positive (n=9)	%age
Domail	77	3	3.89	3	3.89
S. Naurang	41	1	2.43	2	4.87
Surani	25	1	4.00	1	4.00
Kakki	22	1	4.54	2	9.09
Ghori-wala	33	2	6.06	1	3.03

The overall prevalence of HBV and HCV is mentioned in table 3 below.

Table No. 3: Prevalence of HBV and HCV by gender

Sero positive patients	Male		Female		*P* value
	n=	%age	n=	age	
HBV positive (n=8)	4	50.00	4	50.00	0.428*
HCV positive (n=9)	4	44.44	5	55.55	0.466*

*=not significant

DISCUSSION

Hepatitis B Virus (HBV) infection is a global health problem, with an estimated 400 million being chronic carrier of the virus. Around 1 million die due to the consequences of the infection [11, 12]. There have been studies regarding the prevalence of hepatitis B surface antigen (HBsAg) and anti-hepatitis C antibody (HCVAb) in district Bannu. However, the majority of these have reported a variety of rates, depending on their study population, which limits the generalizability

of their results to the general population [10]. The objective of this study was to determine prevalence of HCV and HBV in patients reporting for dental treatmentto dental units in KGN teaching hospital Bannu-kpk. Further, individual seeking dental care may be healthy or suffering from dreadful diseases like hepatitis B and C or may be carriers that cannot be easily identified. Such patient may act as a source for spreading such infection among dental health care workers and other patients in dental clinics. Hence, another objective of present study was to highlight the potential hazards of HBV and HCV to the dental doctors and other associated health workers as well as to patients attending clinics. The detectable level of HBs Ag and HCV antigen is varied from region to region and ranged between 4 and 4.5% in the population. Establishment of vaccination program and well screening in blood banks during the past ten years is expected to reduce the rate of HBV and HCV infection and the carrier pool [10]. As per present study, the sero prevalence of HBV and HCV among dental patients was 4.0% and 4.5 % respectively.

The present study revealed highest prevalence of HBV and HCV infection among health workers which was not noticed in earlier studies. Since a patient seeking treatment may be healthy, infected or a carrier that cannot be easily identified, henceforth, health workers are at high risk of having infection. As for as higher prevalence of HBV and HCV infection in farmers, the economic considerations in terms of morbidity, loss of work-days and also in terms of expenditure is matter of concern [13].

There was no statistical significant difference in prevalence of HCV and HBV in male and females which is partly in consensus with results of Rehman, et al. [10].

A high sero-positivity was prevalent in the age group of 50-62 years (11% for HBV and HCV respectively). However as per Rehman, et al. (2016) 14.35% were below the age of 15 years and 47 (6%) were below 10 years [10].

Regarding residence, most of patients were from Domail area 77 (38.88 % of total no. of patients investigated for serological tests). However most of positive result observed among those who were from country side of the area (38.88 % of total no. of serologically HBV positive cases and the same no. of serologically HCV positive cases) which is partly in consensus with results ofRehman, et al. (2016)[10]. Regarding patient‘s history, the prevalence of injection use both IV and IM was very high. These injections were provided by local chemists. Injection use was not statistically significant for both HBV and HCV results. However, there was a significantly high prevalence of dental procedures among cases as compared to controls ($p < 0.001$) for both HBV and HCV results which is partly in consensus with results of Rehman et al (2016)[10]. As for as Naurangarea is concerned, numerous unqualified medical practioners especially dental quacks are working in the area who do not have any knowledge about science and sterilization/barrier protocols as a result of which there is high chances of cross infection. Furthermore, each dental treatment needs to follow same sterilization protocols as any other minor/major surgical procedures which mean more time, equipments, manpower and expenditure. However, in the present scenario dentistry in the associated areas of district Bannu especially at primary health centre levels of rural areas is miserable where basic requirement for manpower, equipments which definitely counts towards sterilization protocol and chances of cross infection is far below mark.

CONCLUSION

The sero frequency of hepatitis B and C is high among patients especially from rural population of district Bannu attending government dental teaching hospital, Bannu, dental malpractice being major source of cross infection. So there is need to follow certain guideline/ recommendations to prevent these dreadful infections which include[14]:

I. All health workers must follow all sterilization protocols like use disposable gloves, syringe etc. for all procedures; all instruments must be autoclaved and used as sets for each patients.
II. A pre-operative screening (of all patients being prepared for surgery) for HBV and HCV is recommended as a routine, this is not for stigmatization, but to enable the healthcare givers make adequate preparations and take appropriate preventive measures when managing such patients.
III. All dental professionals weather doctor, paramedical staff or dental student need screening for hepatitis B and C.
IV. There is need of surveillance of hepatitis cases and trace to particular dental clinic for preventive measures.
V. There is need of surveillance/check to trace to dental clinics run by quacks for preventive measures.
VI. To reduce the chances of infection of healthcare givers therefore, all of doctors, dentists, surgeons should be vaccinated against HBV preferably at the start of their careers.
VII. Considering the dental treatment requirements in Kashmir valley, there is need to improve manpower facility, equipments and machinery gadgets at least in Government institutes at different levels in order to avoid any chances of cross infection of such dreadful infections.

Author’s Contribution:

Concept & Design of Study: Abdul Razaq
Drafting: Mohammad Omer Khan

Data Analysis:	Fareed Ullah Shah, Mohammad Farooq
Revisiting Critically:	Abdul Razaq, Mohammad Omer Khan, Wasim Ahmad
Final Approval of version:	Abdul Razaq

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Awareness of Self Examination for Breast Cancer among Women of Karachi

Faheem Ahmed[1], Tafazzul H Zaidi[2] and Kiran Mehtab[2]

ABSTRACT

Objective: To assess the awareness of self-examination and symptoms of breast leading to breast cancer in women above 40 year of ages. And to assess the awareness of risk factors and screening test leading to breast cancer in women above 40 year of ages.

Study Design: Descriptive / cross-sectional study

Place and Duration of Study: This study was conducted at the OPDs of Jinnah Post Graduate Medical Center at Karachi from November 2017 to February 2018.

Materials and Methods: The sample size of 284 women above 40 years of age was drawn through non-probability purposive sampling technique at surgical OPDs of Jinnah Post Graduate Medical Center at Karachi. A structured questionnaire regarding awareness about self-examination, risk factors, symptoms and screening test of breast diseases was constructed. Data was collected through the structured questionnaire. Pilot study was done to check the authenticity of questionnaire. Data was entered and analyzed on statistical package for social sciences (SPSS version 20) with 95% confidence interval and 5% margin of error. P-value less than 0.05 was considered statistically significant.

Results: The results showed insufficient knowledge regarding breast diseases in women above 40 years of age. 65 % (0.001) of the women did not know how to self-examine themselves. 64.4% (0.003) agreed breast lump was common in married women. 65.8% (0.059) considered Breast feeding as a cause of Breast lump. 70.1 % (0.000) of them were unaware of the screening test. 53.2% (0.002) didn't take redness of breast seriously. 53.2% (0.055) didn't consider irritation or inward folding of the nipple as a symptom of breast cancer. 65.2% didn't know about risk factors such as contraceptives which can lead to breast cancer. 46% women of age's b/w 40-45 were eager to had knowledge about breast self-examination and risk factors.

Conclusion: Study concluded the women's lack of awareness about self-examination, symptoms and screening test of breast lump which can easily be cancerous due to lack of knowledge. The study will divert the attention of health concerned authorities towards this growing threat by promoting awareness among women and providing proper facilities for the screening programs and early diagnosis.

Key Words: awareness, symptoms, self-examination, cancer, lump, screening

Citation of articles: Ahmed F, Zaidi TH, Mehtab K. Awareness of Self-Examination for Breast Cancer among women of Karachi. Med Forum 2018;29(12):33-36.

INTRODUCTION

Breast cancer is one of the most common malignancies among females globally. It is the 2nd leading cause of cancer death in US[1]. Due to lack of awareness of screening and course of disease, in Pakistan, thousands of women become its victim each year. Guidelines for women at very high risk recommend a combination of mammography and magnetic resonance imaging (MRI) and are appropriate for women with known or suspected inherited susceptibility to breast cancer[2].

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The rate of death from breast cancer was reduced by the introduction of a breast-cancer screening program[3] while on the other hand the role of mass media for creating awareness has been proved vital[4]. Women need to be aware about the clinical symptoms and course of the disease to increase the chances of early detection of breast cancer and thereby to reduce mortality due to it[5].Significant change was also observed in the proportion of those who intended to have mammography[6]. General lack of awareness of the rising incidence of breast cancer is an attributing factor in the Free State among both the public and healthcare professionals[7]. The only variable that has a significant effect on breast cancer awareness is knowledge of someone with breast cancer[8] .In 2012, Pakistan showed lack of recognition of breast cancer as a public health priority[9] .Positive public opinion regarding screening mammography is understandable given that screening advocates have heavily promoted the slogan "early detection saves lives" while ignoring screening harms[10]. An urgent need emerged to find out the level of awareness about breast cancer among women above 40

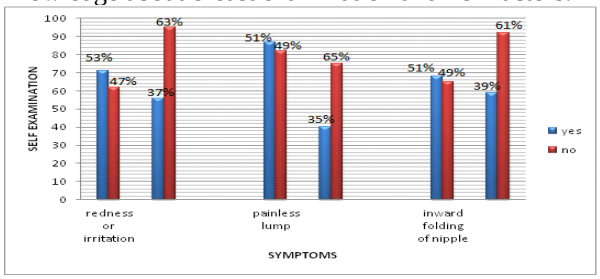
years in Karachi. Poverty, social taboos, lack of resources, limited education, lack of government interest and traditional barriers are the major obstacles that prevented women from acquiring awareness that can lead to early diagnosis and prompt treatment. No national screening program exists on government level in Pakistan. There is delayed presentation of women to the clinics and cancer is diagnosed at advanced stage which decreases their survival rates.

MATERIALS AND METHODS

A cross sectional study was conducted on women age above 40 years at surgical OPDs of JPMC in Karachi from November 2017 to February 2018 using a questionnaire regarding awareness about self-examination, risk factors, symptoms and screening of breast cancer. A sample size of 284 women was taken through non-probability sampling technique. An informed consent was taken from the women who were personally interviewed through a structured questionnaire. The significance of the data was determined by using Statistical Package of Social Sciences software Version 20.0 with 95% confidence interval (95%) and 5% margin of error, p-value of 0.05 was considered as statistically significance. The results were expressed as frequencies, percentages, cross tabulations, pie charts and bar charts.

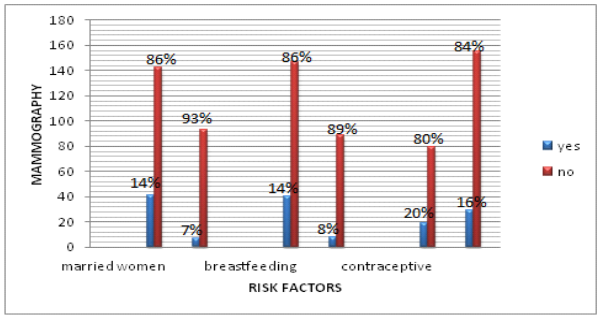
RESULTS

The results showed insufficient knowledge of breast diseases in women above 40 years of age. 65 % (0.001) of the women did not know how to self-examine themselves. 64.4% (0.003) agreed breast lump was common in married women. 65.8% (0.059) considered Breast feeding as a cause of Breast lump. 70.1 % (0.000) of them were unaware of the screening test. 53.2% (0.002) didn't take redness of breast seriously. 53.2% (0.055) didn't consider irritation or inward folding of the nipple as a symptom of breast cancer. 65.2% didn't know about risk factors such as contraceptives which can lead to breast cancer. 46% women of age's b/w 40-45 were eager to had knowledge about breast examination and risk factors.



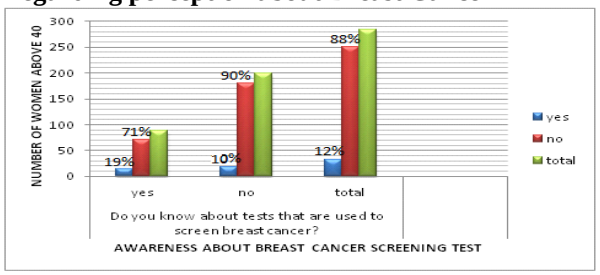
*Result showed most women that didn't know how to self-examine themselves

Figure No.1: Comparison B/W Breast Cancer Symptoms & Self Examination



*Result showed most women didn't know about risk factors

Figure No.2: Frequencies of Yes & No Result Regarding perception about Breast Cancer



*Result showed most women that didn't know about mammography test.

Figure No.3: Frequencies of Yes & No Result Regarding Screening of Breast Cancer

*Result shows women B/W 40-45 were eager to get knowledge.

DISCUSSION

According to this study, majority of the females although knew about the fact that breast lump can lead to breast cancer, the main insufficiency in knowledge was the lack of recognition of lump symptoms as symptoms of breast cancer and a poor understanding of risk factors. The results showed insufficient knowledge regarding breast diseases in women above 40 years of age. 65 % (0.001) of the women did not know how to self-examine themselves which was in contrast according To a Study Conducted in UK in which those women with fewer educational qualifications had poorer knowledge of symptoms, less awareness of lifetime and age-related risks, but were more likely to check their breasts than more highly educated women. This national survey demonstrates a significant lack of the prerequisite knowledge and confidence to detect a breast change. Raising breast cancer awareness and promoting early presentation among older women is important, as they are more at risk of breast cancer and more likely to delay seeking help with breast cancer symptoms than younger women [11]. The study stated that 70.1 % (0.000) of our participants were unaware of the screening test. 64.4% (0.003) agreed breast lump was common in married women. This Finding was similar to a study conducted in Iran in 2011 which

showed that 7.6% of the participants reported performing Breast Self-Examination regularly. [12] Women undergoing routine screening mammography have a two- to threefold higher breast cancer detection rate than those who are not screened [13]. According to a study the women had not gone through the screening regarding the factors leading to breast cancer. Early detection and more effective treatments for breast cancer have significantly improved the outlook for women with the disease [14]. Screening is linked to perceptions of risk, benefit and barriers through a reasoning process that includes personal and social influences and attitudes [15] .Perceived breast cancer risk depends on psychological and cognitive variables and influences adherence to mammography screening guide lines[16]. In A Study, five factors extracted from the exploratory factor analysis generally paralleled those of the physical, social/family, emotional, and functional well-being[17]

A Study Conducted In Karachi Stated findings that suggested that only few of the reproductive factors may play an important role in the development of breast cancer among Karachi population compared to the Western populations. The discrepancies between this study's findings and other studies might be due to the different characteristics of Pakistani women that merit further investigation to further clarify the role of all the risk factors and obtain a deeper insight into the breast cancer epidemic in Karachi. [18]

Although women have good understanding of some aspects of breast cancer there is poor awareness of other important issues, including knowledge of non-lump breast symptoms and lifetime risk of developing the disease[19]. The Study Discovered That among our participants 65.8% (0.059) considered Breast feeding as a cause of Breast lump. One risk factor that the majority of women recalled was a family history of the disease although women with a strong family history of breast cancer have a higher risk, a larger percentage of cases occur in women without a positive family history [20]. Furthermore, radio, television and print media can also play an effective role in providing awareness regarding breast cancer in Pakistan. This Study showed 53.2% Women (0.002) didn't take redness of breast seriously. A red breast is an uncommon presenting complaint in patients evaluated at a breast center; however, the differential diagnosis is extensive. With appropriate diagnosis and treatment, most patients will have improvement or resolution of their symptoms. [21] The Study Showed 53.2% women (0.055) didn't consider irritation or inward folding of the nipple as a symptom of breast cancer. 65.2% didn't know about risk factors such as contraceptives which can lead to breast cancer. Use of the oral contraceptive pill (OCP) is associated with numerous health benefits as well as risks, and it is important that women take these into consideration when making informed contraceptive choices.[22]. 46% women of age's b/w 40-45 were eager to have knowledge about breast examination and risk factors Breast self-examination should be taught routinely to women aged 40 to 69 years and there is little evidence to suggest it is a useful screening tool at other ages. In the study, most of the women did not have any awareness about breast self- examination, and those with the knowledge didn't ever perform. Furthermore awareness about risk factors is lacking among women in Karachi and a very few go for screening and mammography. Better education and improved primary health care will help detection of breast cancer at early stage and prevent mortality.

CONCLUSION

This Study concluded severe lack of awareness about the self-examination, symptoms and screening test of breast lump which can easily be cancerous due to lack of knowledge. The study would be able to divert the attention of health concerned authorities towards this growing threat by promoting awareness among women and providing proper facilities for the screening programs and early diagnosis.

Author's Contribution:

Concept & Design of Study:	Faheem Ahmad
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Data Analysis:	Kiran Mehtab
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

A Comparative Study of Outcomes of Sublay Versus Onaly Mesh Repair at PMCH Nawabshah

Imtiaz Ali Soomro, Abdul Hakeem Jamali, Inayat Ali Zardari, Zulfiqar Imtiaz Memon, Mashooq Ali Khowaja and Altaf Hussain Ghumro

ABSTRACT

Objective: To evaluate the outcomes of the Sublay and Onlay mesh repair techniques in ventral hernias.
Study Design: Prospective study
Place and Duration of Study: This study was conducted at the Surgical Department of PMC Hospital Nawabshah from March 2016 to February 2018.
Materials and Methods: This is a study of 200 patients included both gender male and female (140 female and 60 male) of incisional hernia, Paraumbilical hernia and epigastric hernia. Operative time and complications of surgical techniques like seroma formation, wound infection, mesh removal and recurrence were noted separately and compared between Sublay and Onlay mesh repair techniques.
Results: Common complication observed is the seroma formation 14%, while other complications were as wound infection 10%, mesh removal 2% and recurrence 2%.
Conclusion: In our study, the more beneficial surgical procedure with lesser complications patients suffering from ventral abdominal wall hernias is Sublay mesh repair.
Key Words: Ventral hernia, Mesh repair, Sublay, Onlay

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INTRODUCTION

Ventral hernias are commonly encountered in our surgical practice after inguinal hernias.These arise from the anterior abdominal wall and repaired through multiple methods which require thorough knowledge of anatomy of anterior abdominal wall. Of all abdominal hernias, the common is incisional hernia. The incidence of incisional hernia is 2-20%. The various factors causing this hernia are improper abdominal wound closer, wound infection and wound dehiscence. No evidence is related to etiology of incisional hernia regarding the abdominal wound closer with synthetic monofilament biodegradable sutures versus closer with non absorbable esutures. Transverse/oblique incisions have shown lower rate of incisional hernias as compared vertical incisions.[1]

The ventral hernia is repaired by three methods vizonlay, sublay and inlay.

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These methods use the implantation of prosthetic mesh in different layers of anterior abdominal wall.[2]

The prosthetic mesh can be placed between the subcutaneous tissues of the abdominal wall and anterior rectus sheath (Onlay mesh repair) as well as in the preperitoneal plane created between the rectus sheath (Sublay mesh repair).But the best position for the inserting the mesh has not been conclusively established till date as per literature.[3]

Repair of hernia defects by mesh was introduced in the late 1980. The preperitoneal (Sublay) mesh was first described by Renestope, Jean Rives and George Wantz. This technique is considered to be the best one for the open repair of the abdominal ventral hernias.[4,5,6]

The Onlay is sutured over the primary repair to the anterior rectus sheath as reinforcement but this repair suture line under tension and the mesh increases the infection rate. The Sublay mesh repair is the most preferred method by the surgeons in the world now a days because of its least infection rate and can be performed by open and laparoscopic methods.[7,8] Inlay mesh repair is difficult to perform laparoscopically so it is mostly done by open approach. More over mesh is in direct contact with intestine so it can produce fatal complication like fecal fistula.[9,10]

The rationale of our study is to find out the better method of open ventral hernia mesh repair by comparing the results of Sublay versus Onlay techniques for the benefit of the patients in our community.

MATERIALS AND METHODS

The prospective study was carried out in 200 patients. This study was conducted in surgical department, People's University of Medical and Health Sciences Hospital Nawabshah from March 2016 to February 2018. All the patients were admitted from Surgical outpatient department (OPD). They were investigated biochemically. Imaging was done. Cardiac and anesthesia fitness was obtained and patients were shifted to Operation Theater on elective list.

Patients were categorized assublay mesh repair and Onlay mesh repair. Surgical procedures of Sublay and Onlay mesh repair were done under general anesthesia. All aseptic measures were done during surgery. Broad spectrum antibiotic was injected during the induction of anesthesia.

In Sublay mesh repair surgery was started by removing the old surgical scar in cases of incisional hernias but inPara umbilical hernias, transverse incision was made, while in epigastric hernias vertical incision was made. Meticulous dissection was done to expose the defect. Hernia sac was exposed. Underlying visceral injury was avoided by careful dissection. Around the defect the bed for mesh was formed about at least 4-5 cm. Polypropylene mesh was placed under the defect in retro muscular layer. The mesh anchored to the peritoneum by multiple stitches.

Suction drains were placed for incisional hernia and large Paraumbilical hernia >4 cm only for 3-4 days.

In Onlay mesh repair surgery was started as same as Sublay mesh repair. The edges of the defect were approximated by polypropylene suture material than mesh was placed over the sheath of muscle and anchored. Redivac drains were placed. Wound was closed and dressed.

RESULTS

In our study, of total 200 patients there were 140 females and 60 male. The female and male patient's ratio was 2.33:1. Patients included wasbetween 30 and 60 years old. Mean age was 45 years. Patients having primary incisional hernia were 138. Patients of Paraumbilical hernia were 44 while 18 of epigastric hernia.

In cases of incisional hernias the previous surgeries were as bowel related 60, gynecological related 70, biliary related 30, appendectomy related 20 and renal related surgeries 20. In our study it was noticed that wound infection was frequent and most common cause of incisional hernia formation. In 120 cases of the incisional hernia, the 80 cases have defect 8-10 cm, 30 cases 5-8 while 10 cases have less than 5cm.

Regarding the post operative complications, the seroma formation was the most common. 24 cases in Onlay mesh repair and 4 cases in Sublay mesh repair developed seroma formation. 18 cases in Onlay mesh repair and 2 cases in Sublay mesh repair developed wound infection. Mesh removal was done in 2 cases in Onlay mesh repair while none was in Sublay mesh repair. Recurrence was 2 cases in Onlay mesh repair while none was in Sublay mesh repair. Flap necrosis was 2 cases in Onlay mesh repair while none was in Sublay mesh repair.

Table No. 1: Age and sex distribution

Age (years)	Male	Female	Total	Percent
30-40	12	30	42	21%
41-50	30	70	100	50%
51-60	18	40	58	29%

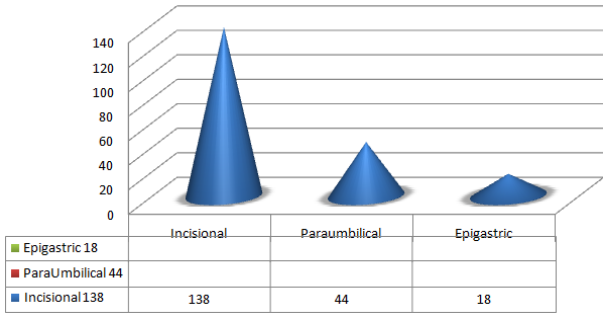

Table No. 2: Previous operations for patients with incisional hernia

Type of surgery	Number	Percent
Bowel related	60	30%
Gynaecological related	70	35%
Biliary related	30	15%
Appendecectomy related	20	10%
Renal related	20	10%
Total	**200**	**100%**

Table No. 4: Post operative complications

Post operative complications	Onaly mesh repair	Sublay mesh repair
Seroma	24	4
Wound infection	18	2
Mesh removal	2	0
Recurrence	2	0
Flap necrosis	2	0
Total	48 (24%)	6 (3%)

DISCUSSION

In surgical practice, the mesh repair of ventral hernias is a challengeable task. Various surgical procedures have been used to repair and strengthen the hernia defect by mesh.[11]In our study, Sublay mesh repair has proven to be the better one as compared to Onlay. Sublay mesh repair has lowered the recurrence rate, wound infection and other complications and has given satisfactory outcome results. Recurrence, mesh removal and flap

necrosis was zero in cases of Sublay procedure.In previousstudies, the operative time was more in Sublay mesh repair as compared to the Onlay mesh repair because of forming preperitoneal space but in our study it was altogether different.[12] The minimum time was gotten to perform the procedure by approaching the space through multiple ways.

Seroma formation is a common and frequent early complication in previous studies and it is less in Sublay mesh repair. In our study it is also observed that seroma formation is very low found only in 4 (2%) patients as compared with Onlay mesh repair in which it was present in 24 (12%) patients.[13,14,15,]

Wound infection is about 6-12% in previous studies; while in our study it is 9% in Onlay and only 1% in Sublay procedure[16, 17]. Previous studies show that placement of tension free mesh is good technique with lower the recurrence rate.[18,19]In our study, it is also observed that tension free mesh has decreased recurrence. In Onlay it is found only in 2 (1%) patients whereas in Sublay it is 0%.In one study, it is found that flap necrosis is found following Sublay method but in our study none of the patient came with complain of flap necrosis on follow up.

In other studies, the most common patients came with incisional hernias were previously operated for major bowel surgeries[20,21] but in our case it is different and astonishing that patients with gynecological problems were admitted and operated for incisional hernias.

The incidence of ventral hernias is commonly found in women as compared to male in our study like other studies[22] and the Paraumbilical hernia is the second last in incidence after incisional hernia.

CONCLUSION

Sublay mesh repair had proved to be the better as compared to Onlay procedure in all types of ventral hernias. Comparison of the global studies with our study has demonstrated that Sublay is the better one with lowest rate of complications and rapid recovery.

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Laparoscopic Cholecystectomy

Direct Trocar Insertion for Laparoscopic Cholecystectomy

Asad Bilal Arif[1], Sadaf Fasih[2] and Mazhar ul Haque[3]

ABSTRACT

Objective: To determine direct trocar insertion for laparoscopic cholecystectomy.
Study Design: Descriptive / case series study
Place and Duration of Study: This study was conducted at the Pima Al Hajri Hospital, Muzaffarabad from November, 2016 to November, 2017.
Materials and Methods: Total 100 patients who underwent elective laparoscopic cholecystectomy were included in the study and the technique used to create pneumoperitoneum was direct insertion of the trocar in all the patients. The injuries were classified as minor or major, depending on there ability to significantly affect the surgical procedure and eventual outcome. The injuries were assessed for upto six months follow up.
Results: Creation of the pneumoperitoneum with direct trocar insertion (DTI) was successful in 100% (n=100) patients. No major complication was encountered during the study. Immediate minor post-operative complications like wound infection 0.5% (n=1) and hematomas 1.5% (n=3) were infrequent.
Conclusion: This study shows that DTI is a safe and effective alternative for creation of pneumoperitoneum in laparoscopic cholecystectomy.
Key Words: Pneumoperitoneum, direct trocar insertion (DTI), laparoscopy.

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INTRODUCTION

Laparoscopic abdominal surgeries depend primarily on the creation of successful pneumoperitoneum. Most of the patients suffer from complications like bleeding, sub-cutaneous emphysema, GI tract perforations and major or minor vascular injuries during this first step of the procedure i.e. creation of pneumoperitoneum[1-5]. There are four basic techniques used for the creation of pneumoperitoneum which include blind varess needle insertion, direct trocar insertion, optical trocar insertion and open laparoscopy.[6] Direct trocar insertion (DTI) was used for the first time by Dingfelder in 1978 but so far it is reportedly the least used entry technique and is mainly used by the gynaecologists.[7-15] The literature is suggesting one or the other technique's superiority without sufficient corroborating evidence.[6-10,13,15] In cinical practice, the senior surgeons normally advocate the open technique or varess needle technique for the trainees considering it to be the safer technique than others.

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Our institution is a community hospital in Muzaffarabad, Azad Jammu and Kashmir. We have been using DTI technique for creating pneumo-peritoneum in laparoscopic cholecystectomies in all cases where there is no contraindication for the last one year. The reported benefits of DTI are decreased operating time, early recognition of visceral / vascular injuries and very rare entry failure.
The study was aimed at evaluating the risks in patients undergoing laparoscopic cholecystectomy with DTI technique of pneumoperitoneum, focusing primarily on the safety and benefits of the procedure. This study reports the experience of a single consultant surgeon using direct trocar insertion for the creation of pneumoperitoneum in laparoscopic cholecystectomy.

MATERIALS AND METHODS

It was descriptive case series study which was conducted at surgical Dept. PIMA hospital from Nov 2016 to Nov, 2017. All patients of either sex who underwent laparoscope cholecystectomy were included in the study and DTI technique was used for the establishment of pneumoperitoneum. More than two abdominal incisions (at least one which was mid line) was the sole contraindication for DTI technique. A single consultant laparoscopic surgeon performed all surgeries. Injuries were classified as major or minor, which depends on their effect on the procedure and the outcome. The outcome measures were defined as

a. Minor complications: They include conditions that do not influence the duration of the post-operative

hospital stay and do not require additional surgical intervention.

b. Major complications: These are the ones that require conversion to an open surgery, leading to prolong stay in the hospital, and/or re-admission in the hospital or leading to death.

For the purpose of evaluation, the trocar insertion time was considered as, the time interval between skin incision and introduction of laparoscope.

RESULTS

There was one laparoscopic surgeon who used the DTI technique in 100 consecutive patients who were planned for elective laparoscopic cholecystectomies. Out of these 100 patients, 84% (n=84) were females and 16% (n=16) were male (table 1). The patient's age ranged from 21-62 years with a mean age of 34 ±3.44years. DTI was found successful in 100% of cases. There was no major complication. Minor post-operative complications were also infrequent. They included 0.5% (n=1) wound infection and 1.5% (n=3) hematomas. At mean follow-up of 6 months, 1.5% (n=3) umbilical wound stitch granulomas at the umbilical port site were observed (table 2). Duration of DTI was 55±13 seconds.

Table No.1: Demographics : gender of patients

Gender	Percentage	Number (N)
Male	16%	16
Female	84%	84

Table No.2: Complications of DTI

Complications	%n	n
Subcutaneous emphysema	0.5 %	1
Vascular trauma	0 %	0
Visceral injury	0 %	0
Bleeding(Hematoma)	1.5 %	3
Conversion to open surgery	0 %	0
Port site (wound) infection	0.5 %	1
Umblical wound stitch granuloma	1.5 %	3

DISCUSSION

The establishment of pneumoperitoneum is the first and inevitable step in the laparoscopic surgery and it is also considered as the first difficulty encountered by trainee laproscopic surgeons. This step is potentially considered to be associated with various comlications owing to its blind nature. Bleeding, sub-cutaneous emphysema, GI tract perforations and minor and major vascular injuries are the potential complications linked with first trocar insertion for the creation of pneumoperitoneum.[1-4] There are four basic techniques used for the creation of pneumoperitoneum: blind varess needle insertion, direct trocar insertion, optical trocar insertion and open laparoscopic technique.[6]DTI technique was first reported by Dingfelder in 1978 and later described by Copeland et al in 1983[16] but till now it is probably the least used entry technique. It is mainly used by the gynaecologists[7-10]. Copeland et al emphasized that the key to successful DTI are adequate wall relaxation, proper skin incision and the use of sharp trocar.[16]The introduction of shielded trocar has encouraged few more surgeons to practice DTI but as yet no experimental or clinical study has shown the superiority of the shielded trocar over the non-shielded one[7]. DTI is reported to be a safe alternative to varess needle technique[12]. DTI, still a blind technique, decreases the number of blind steps from 3 (insertion, insufflation and first trocar introduction) with varess needle to just one (trocar introduction). It is also reported that with DTI it is possible to immediately recognize any iatrogenic injury and to repair it laparoscopically at once. [7,9,10,17] DTI has been reported to be associated with fewer insufflation related complications such as gas embolism and was faster technique than varess needle.[14] In a randomized prospective study of 84 patients, Prieto-Diaz-Chavez et al reported complication rates of 2-3% and 23.8% after DTI and varess needle technique respectively.[12] Akbar et al found DTI to be highly feasible alternative to open laparoscopic technique for the creation of pneumoperineumin laparoscopic cholecystectomies.[2] Angioly et al in his study found that open technique with Hassan's cannula, which was initially considered a very safe alternative, is not complication free, and its time consuming nature and cost have made its use very selective in laparoscopic surgery.[15]Some surgeons report open laparoscopic technique as the gold standard, yet in the international literature it is shown that in cases where midline is not safe to approach, varess needle is a very valid alternative with good results and minimal to no morbidity.[17] Open laparoscopy does not totally eliminate the possibility of injury to the bowel particularly if it is abnormally situated as in adhesions. More-so, open laparoscopy does not allow good visualization of the peritoneal cavity unless the initial incision is enlarged, which results in decreasing the benefits of small laparoscopic incisions. This is more evident in cases of obese patients having abdominal wall laden with fat. As a result, there might be a need to make a larger incision thus invalidating the pain reduction advantage of laparoscopy and increasing the risk of port site hernias.[3]Almost all the international surgical and gynecological associations in setting down the guide lines for abdominal entry do not recommend one method over the other as the preferred method.[6,8,18,19,20] The study was carried out to assess the safety and efficacy of DTI technique in laparascopic cholecystectomy. In accordance with the literature we found it to be highly feasible, safe and effective technique for the establishment of pneumoperitoneum with no significant major or minor complications. But it should also be emphasized that the preference of first trocar introduction technique varies with surgeon to surgeon and it largely depends on how a particular surgeon is trained and how his supervisor/mentor used to carry out the procedure. We cannot recommend a specific procedure to all the surgeons who are not

trained enough in DTI technique but if learnt, we consider DTI, as effective as any other technique, with much safer results and decreasing the time of creating pneumoperitoneum so that the prime focus of the surgeon is not deviated from actual procedure towards successful creation of pneumoperitoneum.

CONCLUSION

In this study, DTI was found to be a very effective and fast alternative for the establishment of pneumoperitoneum in laparoscopic cholecystectomies and other laparoscopic procedures but it should also be emphasized that the technique for the creation of pneumoperitoneum rests solely on the surgeon and the way they have been trained. We believe that along with other techniques DTI should be regarded as a valuable part of surgical technique for skilled laparoscopic surgeon. We also recommend that DTI should be practiced in selected patients so that the surgeons can have ability to choose from different techniques whenever required and possible.

Author's Contribution:

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Revisiting Critically:	Asad Bilal Arif, Sadaf Fasih
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Original Article

Acute Poisoning

Pattern of Acute Poisoning in Khyber Pakhtunkhwa

Abid Karim[1], Hassan Abid[2], Masood Uz Zaman[1], Hakim Khan Afridi[1], Muhammad Mohsin Abid[2] and Arshad Iqbal[3]

ABSTRACT

Objective: To determine Pattern of Acute Poisoning in KPK.
Study Design: Retrospective Study
Place and Duration of Study: This study was conducted at the Toxicology Laboratory at Forensic Medicine and Toxicology Department Khyber Medical College, Peshawar from January 2015 to December 2016.
Materials and Methods: The detection of poisons was conducted by chemical method and gas chromatographic method. A Performa was designed to record Age, Sex, Area, Substance of Poisoning and Medico- Legal type of poisoning. This Data was collected with the permission of ethical committee of the institute and analyzed for results by version SPSS 10.
Results: The incidence of acute poisoning was maximum (39.32%) 210 cases in the age group 16-30 years and minimum (9.36%) 50 cases in the age group 03-15 years as shown in table no.01. There were (53.37%) 285 cases of female patients and (46.62%) 249 cases of male as shown in table no.2. The incidence of acute poisoning in urban population was (56.17%) 300 cases and (43.82%) 234 cases belong to rural population as shown in table no.03. The incidence of homicidal poisoning (3.93%) 21 cases, suicidal poisoning (63.10%) 337 cases, accidental poisoning (16.10%) 86 cases, poisoning due to addiction (16.10%) 86 cases and therapeutic poisoning (0.74%) 4 cases were recorded as shown an table no.04. It was observed that benzodiazepine poisoning (29.58%) 158 cases, phosphine poisoning (15.91%) 85 cases, morphine poisoning (11.79%) 63 cases, heroin poisoning (8.05%) 43 cases, tricycle antidepronats (6.74%) 36 cases, ethyl alcohol poisoning (5.99%) 32 cases, organophosphate poisoning (5.61%) 30 cases, methane phetamine (4.49%) 24 cases, cannabis poisoning (2.80%) 15 cases, arsenic poisoning (1.12%) 6 cases, nitric acid poisoning (0.93%) 5 cases, carbon monoxide poisoning (4.11%) 22 cases, chloroform poisoning (1.87%) 10 cases and mushroom poisoning (0.93%) 5 cases recorded as shown in table no.5.
Conclusion:
Key Words: Poisoning, Toxicology Laboratory and Retrospective Study

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INTRODUCTION

Harming is characterized as introduction of a person to a substance that can cause side effects and indications of organ brokenness prompting damage or death.[1] Poisoning has been distinguished as one of the real reasons for the youth and youthfulness healing facility crisis introductions and confirmations in most created nations including the United States, United Kingdom, and Australia.[2,3]

In creating nations, harming has additionally been perceived as a noteworthy medical issue among kids and adolescents.[4] Accidental harming is ensnared in around 2% of all damage passings in youngsters in creating countries.[5]

Harming might be intense or incessant. In intense harming side effects all of a sudden show up not long after the presumed sustenance, solution or liquid has been taken[19]. The individual, beforehand known to be healthy, is influenced with a gathering of manifestations which don't affirm to common disease. In unending harming, side effects grow guilefully and slowly. There is reduction or even total vanishing of side effects on the expulsion of the patient from his typical surroundings.[6]

Intense harming and concoction introduction is a developing issue the world over[7]. This can be credited in vast part because of an inexorably fast rate of industrialization and a concurrent increment in the number and sorts of synthetic concoctions accessible[8]. As per the Chemical Abstracts Service (CAS) Registry, in excess of 83 million compound substances are right now accessible and roughly 4000 new synthetic substances are presented on the planet consistently[9,10].

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The bounty of such synthetic concoctions has imperative ramifications for wellbeing over the globe[11]. Harming is likewise in charge of a huge extent of deliberate wounds, especially those that are self-exacted. It is evaluated that 23% of self-dispensed wounds all around include the purposeful utilization of pesticides[12]. In any case, the kind of toxin utilized for conscious self-harming changes altogether by locale. In LMICs, pesticides, for example, organophosphate, carbamate, organochlorine, paraquate and aluminum phosphide are the significant harms utilized, particularly in country territories, and are related with high mortality, while in urban zones, pharmaceuticals are more typical operators and for the most part connected with low mortality[13]. Generally mortality because of self-harming in LMICs (10-20%) is substantially higher than in high-wage nations (0.5-1%) because of poisonous quality of accessible harming specialists and absence of crisis therapeutic administrations[14].

MATERIALS AND METHODS

This retrospective study includes 534 Patients of Acute Poisoning from KPK during January 2015 – December 2016. A Performa was designed to record Age, Sex, Area, Substance of Poisoning and Medico- Legal type of poisoning. The detection of poisons was conducting by chemical method and gas chromatic method. This Data was collected with the permission of ethical committee of the institute and analyzed for results by version SPSS 10.

RESULTS

The incidence of acute poisoning was maximum (39.32%) 210 cases in the age group 16-30 years and minimum (9.36%) 50 cases in the age group 03-15 years as shown in table no.01. There were (53.37%) 285 cases of female patients and (46.62%) 249 cases of male as shown in table no.2. The incidence of acute poisoning in urban population was (56.17%) 300 cases and (43.82%) 234 cases belong to rural population as shown in table 3.

Table No. 1: Age distribution in Acute Poisoning

Sr. No.	Age (Years)	No of Patients	Percentage (%)
1	03-15	50	9.36%
2	16-30	210	39.32%
3	31-45	127	23.78%
4	46-60	73	13.67%
5	61-75	74	13.85%
	Total	**534**	**100%**

Table No. 2: Sex Distributions in Acute Poisoning

Sr. No.	Sex	No of Patients	Percentage %
1	Male	249	46.62%
2	Female	285	53.37%
	Total	**534**	**100%**

Table No. 3: Area Distributions in Acute Poisoning

Sr No	Area	No of Patients	Percentage %
1	Urban	300	56.17%
2	Rural	234	43.82%
	Total	**534**	**100%**

The incidence of homicidal poisoning (3.93%) 21 cases, suicidal poisoning (63.10%) 337 cases, accidental poisoning (16.10%) 86 cases, poisoning due to addiction (16.10%) 86 cases and therapeutic poisoning (0.74%) 4 cases were recorded as shown an table no.04. It was observed that benzodiazepine poisoning (29.58%) 158 cases, phosphine poisoning (15.91%) 85 cases, morphine poisoning (11.79%) 63 cases, heroin poisoning (8.05%) 43 cases, tricycle antidepronats (6.74%) 36 cases, ethyl alcohol poisoning (5.99%) 32 cases, organophosphate poisoning (5.61%) 30 cases, methane phetamine (4.49%) 24 cases, cannabis poisoning (2.80%) 15 cases, arsenic poisoning (1.12%) 6 cases, nitric acid poisoning (0.93%) 5 cases, carbon monoxide poisoning (4.11%) 22 cases, chloroform poisoning (1.87%) 10 cases and mushroom poisoning (0.93%) 5 cases recorded as shown in table 5.

Table No.4: Medico Legal Distribution of Acute Poisoning

Sr. No.	Medico Legal	No Of Patients (%)	Male (%)	Female (%)	Children (%)	Old Age (%)
1	Homicidal	21	11	8	-	2
2	Suicidal	337	110	227	-	-
3	Accidental	86	22	-	46	18
4	Addiction	86	82	-	-	4
5	Therapeutic	4	-	-	4	-
	Total	**534**	**225**	**235**	**50**	**24**

Table No.5: Pattern of Acute Poisoning

Sr. No	Type of Poison	Total cases	Male cases	Female cases	Children cases	Old age cases
1	**Benzodiazepine**	158	10 suicidal exhibitional	97 suicidal exhibitional	35 accidental	16 accidental
2	**Phosphine (Gandum wali Goli)**	85	18 suicidal	67 suicidal	-	-
3	**Morphine**	63	52 addicts	5 suicidal	4 therapeutic	2 addicts
4	**Heroin**	43	30 addicts	9 suicidal	2 accidental	2 addicts
5	**Tricycle antidepronats (TCA)**	36	8 suicidal	26 suicidal	2 accidental	-
6	**Alcohol**	32	24exhibitional suicidal attempts	6 exhibitional suicidal attempts	-	2 accidental over dose
7	**Organophosphate**	30	15 suicidal	15 suicidal	-	-
8	**Methan Phetamine**	24	24 suicidal	-	-	-
9	**Cannabis (THC)**	15	11 suicidal	2 suicidal	2 accidental	-
10	**Arsenic**	6	6 homicidal	-	-	-
11	**Nitric Acid**	5	3 homicidal	2 homicidal	-	-
12	**Carbon Monoxide**	22	22 accidental	-	-	-
13	**Chloroform**	10	2 homicidal	6 homicidal	-	2 homicidal
14	**Mashroom**	5	-	-	5 accidental	-
	Total	**534**	**225**	**235**	**50**	**24**

DISCUSSION

This is the first study to determine the pattern of acute poisoning at KPK. It showed that acute poisoning also contributes to morbidity and mortality in human beings. The proportion was higher in teenagers and young adults as compared to other age groups. The incidence of poisoning was higher in female as compared to male. The patients of acute poisoning were at higher proportion from urban population as compared to rural area. Suicidal poisoning was at the top among homicidal and accidental poisoning. It was also observed that benzodiazepine poisoning was at higher incidence than other dugs of poisoning. The tendency of suicidal poisoning was maximum in female patients. The trend of accidental poisoning was found in children and old people. Morphine and heroin poisoning was at top among poisoning of drug of addiction.

Our results of acute poisoning correlate with the study of Adil et al,[8] Syed Kashif Abbas et al,[9] Murad Moosa Khan et al,[10] Nadeem Ullah Khan et al.[11]

CONCLUSION

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Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Skin Adhesive Versus Absorbable Suture in Closing Wound

Saiqa Majeed, Rufina Soomro and Nadeem Khurshaidi

ABSTRACT

Objective: To compare the outcomes of wound closure in breast surgery incisions by conventional suture technique versus tissue adhesive.

Study Design: Randomized controlled trial study

Place and Duration of Study: This study was conducted at the Department of General Surgery, Breast Unit, Liaquat National Hospital. Karachi from 23rd May 2017 to 31st January 2018.

Materials and Methods: Total 100 patients were included and divided equally in Group-A (tissue adhesive Dermabond) and in Group-B (conventional suturing technique). The time required to close the wound was recorded. On 7th postoperative day wound was assessed on the basis of presence or absence of infection and wound dehiscence.

Results: In patient with tissue adhesives the mean closure time was 47.32±69.13 seconds while with suture closure it was205.00±113.12 seconds. 4% patients observed to have wound infection in tissue glue versus 16% in suture closure. Wound dehiscence was found in 2% patients with wound closed by tissue glue and 14% in patient with suture closure.

Conclusion: The study concluded that tissue adhesive is a safe and effective method for closure of skin incision and there is a significant difference in wound closure time, wound dehiscence and wound infection when compared with conventional suturing.

Key Words: Wound Closure, Breast Surgery Incisions, Conventional Suture Technique, Tissue Adhesive.

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INTRODUCTION

Secure skin closure is an integral step in nearly every surgical procedure. If the method used to close the skin incision is not good enough to provide strength and support required by the tissue to approximate; the edges of the wound may separate providing a potential pathway for bacterial contamination which then lead to wound infection, poor cosmetic outcome and patient satisfaction .[1, 2]

There have been always a conventional method of wound closure by a suture but the use of tissue adhesive has been increased in recent years because it is safe, less time consuming, less traumatic and provide good cosmetic effect. Different types of tissue adhesives have been used ranging from adhesive strips to adhesive gels (biological and synthetic). Cyanoacrylate gels are a family of synthetic, strong, fast-acting adhesive which is widely being used and Octylcynaoacrylate (Dermabond) is a first FDA approved adhesive used in surgical wounds[3,4]. The various studies have been published on the use of tissue adhesives and most of them are on closing wounds in plastic surgery, head and neck surgery, traumatic lacerations, general surgical procedures including laparoscopic surgery.

Fewer studies have been done on the outcome of wound closure with standard suture technique versus tissue adhesives in breast surgery especially in this part of the world. This study aims to compare the efficacy (in terms of cosmetic outcome and wound dehiscence) and time required for skin closure with tissue adhesive and standard suturing technique on breast surgical incisions.

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MATERIALS AND METHODS

This Randomized Control study was conducted at the Department of General Surgery, Liaquat National Hospital, Karachi, from 23rd May 2017 to 31st January 2018. Total of 100 patients included, divided equally in two groups.

Inclusion criteria:

- All female patients electively admitted for excision of breast lump (up to5 cm).
- Age limit 18-65 years

Exclusion criteria:

- Patients with incision involving the axilla
- Traumatic wounds (confirmed by history)
- Surgical incisions placed on previous scars
- Inflammatory/ infected breast lumps

- Patients on immunosuppressant or anticoagulants that may affect wound healing
- Patients with uncontrolled diabetes mellitus (HbA1c of more than 6.5mg/dl)
- Known allergy to octylcyanoacrylate
- Previous history of hypertrophic or keloid formation

Study was formally approved by the hospital research and ethics committee. Informed consent was taken from each patient. Verbal and written consent was acquired from all patients meeting the inclusion criteria. Basic clinical data like age and surgical procedure were recorded in the Performa provided in the study tool section by the principle investigator. The skin incision was closed by a well-trained resident (minimum year 3 of residency). The patients were divided in two groups randomly with the help of lottery method. Sealed envelope technique was used.

- Group A patients underwent skin closure by tissue adhesive Dermabond (Ethicon Inc.).
- Group B patients underwent Conventional subcuticular suturing technique with 3-0 Vicryl (Ethicon Inc.).

The time required to close the wound by two above mentioned method was recorded with the help of stop watch. The patient followed up in the OPD at 7th post-operative day. At 7th day wound was assessed on the basis of presence or absence of infection and wound dehiscence and findings were entered into the Performa.

RESULTS

Total 100 female patients with age between 18 years to 65 years meeting inclusion criteria were included to compare the outcomes of wound closure in breast surgery incisions by conventional suture technique versus tissue adhesive. In both study groups, Group A (tissue adhesive technique) and Group B (Conventional subcuticular suturing technique) 50 patients were included. Descriptive statistics were calculated using SPSS version 21. Qualitative variables were presented in terms of frequency and percentages.

Table No.1: Descriptive Statistics of Age (years) (n=100)

	Group A (n=50)	Group B (n=50)
Mean	35.72	38.28
SD	14.47	13.50
Median	33.00	36.00
Minimum	18	18
Maximum	65	65
Range	47	47

Quantitative variables were presented in term of mean and standard deviations. Stratification was done to see the effect of modifiers on outcome. Independent t-test was applied to compare means. Post stratification chi square test was applied considering p≤0.05 as significant.

The mean age of patients in group A and group B was 35.72±14.47 years and 38.28±13.50 years respectively. The descriptive statistics of age are presented in Table-1.

In our study, mean closure time was 47.32±69.13 seconds in group A (tissue glue) and 205.00±113.12 seconds in group B (suture closure). In group A (tissue glue) 4% patients was observed wound infection and 16% patients observed wound infection in group B (suture closure). Wound dehiscence was found in 2% patients of group A and among 14% patients of group B.

Independent t-test was applied to compare means between two study groups. The results showed that there was significant mean difference in closure duration among two study group (p=0.000) as presented in Table 2.

Table No. 2: Comparison of Mean Closure Duration with Study Group (n=100)

	Study Group		P-Value
	Group A	Group B	
Mean	47.32	205.00	0.000*
SD	69.13	113.12	

Independent t-test was applied.
P-value ≤0.05 considered as Significant.
*Significant at 0.05 levels.

Table No. 3: Frequency and Association of Wound Infection with Study Group (n=100)

Wound Infection	Study Group		Total	P-Value
	Group A	Group B		
Yes	2(4)	8(16)	**10(10)**	0.046*
No	48(96)	42(84)	**90(90)**	
TOTAL	**50**	**50**	**100**	

Chi Square Test was applied.
P-value ≤0.05 considered as Significant.
*Significant at 0.05 levels.

Table No. 4: Frequency and Association of Wound Dehiscence with Study Group (n=100)

Wound dehiscence	Study Group		Total	P-Value
	Group A	Group B		
Yes	1(12.5)	7(87.5)	**8**	0.027*
No	49(53.3)	43(46.7)	**92**	
Total	**50**	**50**	**100**	

Chi Square Test was applied.
P-value ≤0.05 considered as Significant.
*Significant at 0.05 levels.

Standard preoperative sterile measures taken, no prophylactic antibiotic used for breast lumpectomy in both groups. Comparison of wound infection and wound dehiscence among the two study groups was done. The results also showed that there was significant association of wound infection (p=0.046) and wound

dehiscence (p=0.027) among two study groups as shown in table 3 & 4, respectively.

DISCUSSION

Surgery for breast diseases (benign or malignant) is very common, and scar related to this surgery needs to be cosmetically acceptable with minimal risk of infection. Suture material has been used as a conventional method for closure of breast wounds since decades and even now regarded as standard method of wound closure. Tissue adhesive material has long been used in wound closure in western part of world, and offers the advantages of faster wound closure, good cosmetic outcome and lesser postoperative wound care. Little has been found in the literature regarding the use of tissue glue for breast incisions. Our study highlights its use in breast wound and signifies the outcomes of tissue adhesive which are comparable to international studies. Apart from using tissue adhesive for skin closure, various studies have been conducted showing the versatile use of height and scar color was comparable between the study groups. For obvious reasons there were no hatch marks in the tissue adhesive group.

Sebesta et al, used tissue adhesives for closure of laparoscopic trocar wounds and observed that 2 out of 30 patients i.e. 6.6 % developed subcuticular seroma with wound dehiscence[5].

Study also compared the time for closure of wound among both groups, mean closure time with tissue adhesive was 3.7mins and with suture 14mins (p value of <0.00001)[5], that is comparable to our results. Singer AJ and colleagues repaired traumatic lacerations using tissue adhesive, on follow up they found that, only 1 wound was infected and only 2 wounds (out of 63 patients), required re closure due to dehiscence[6]. Similar to thisstudy[6], in our study only 2 patients (out of 50 patients) were found to have wound infection with skin adhesive.

Sebesta and colleagues showed that there was no difference was in complication rates between tissue adhesive and suture group[5]. Similar findings were seen in another study, 8% of subjects in the suturing group developed wound infection compared to just 4 percent in the tissue adhesive group. The findings of our study correlate with the finding of Maartense et al. that tissue adhesive was associated with fewer wound infections than the sutures[7]. Souza et al, found that routine use of topical adhesive for wound closure decreased the infection rates when used as an add-on measure to conventional sutures, with a significant reduction in infection rates for cardiovascular surgery patients[8].

Studies comparing conventional suturing with tissue adhesive for wound closure in other surgeries has had varied results. In 1997, a randomized control trial comparing cyanoacrylate tissue adhesive and sutures in the management of lacerations found no difference in the cosmetic outcome and there was no difference in the percentage of early or late optimal wound evaluation scores. Tissue adhesive was found to be a less painful method of closure. This study showed that tissue adhesive was fast and painless method of closure, as in the case in our study[9].

CONCLUSION

The study results showed that the use of tissue adhesive has an advantage when compared to conventional suturing. In conclusion, our study results showed that tissue adhesive is a safe and effective method for closure of skin incisions. There is a significant difference in wound closure time, wound dehiscence and wound infection when compared with conventional suturing.

We recommend the safe use of tissue adhesive in breast lumpectomies and possibly in other clean wounds for skin closure.

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Versatile Deltopectoral Flap - How to Take Maximum Benefit of This Flap

Jamil Memon[1], Ashfaque Hussain Rana[2] and Sohail A. Malik[1]

ABSTRACT

Objective: To take the maximum benefits of the deltopectoral flap as a reconstructive option for defects in the head and neck region in the microvascular era.

Study Design: Retrospective / observational study

Place and Duration of Study: This study was conducted at the ENT Department, Al-Tibri Medical College & Hospital (Isra University Karachi Campus) from January 2016 to March 2017.

Materials and Methods: 21patients were included in this study, age range between 40 and 65. Patients were divided into two groups. A group with eight patients dealt with long arc of deltopectoral flap and group B thirteen patients with short arc.

Results: In A group out of eight one showed blackening of recipient site without smell, that blackening was just a superficial epidermis, deep part of the recipient site was healthy. Second showed complete necrosis of that part which was attached to recipient site. In group B, grafts remained healthy in all patients.

Conclusion: Results of group B patient were better because we made the arc of rotation smaller, that means recipient was not extended upto shoulder instead kept on chest and shifting it to recipient site with little tilt and flexion of neck.

Key Words: Deltopactoral flap, Vascularity, Short arc.

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INTRODUCTION

Head and neck surgeons are very much interested in using deltopectoral flap for repairing the defects which are usually the result of pathologies in this area of head and neck. Deltopectoral flap use skin, subcutaneous tissue, pectoralis major muscle as a part of it for cervical as well as neck reconstruction.

In 1917 Aymard was the first person who used deltopectoral flap for the reconstruction of nose. The popularity of this flap was on the peak in 1965 when Bakamjian used this flap for the reconstruction of pharynx, oesophagus and larynx. These were the cases who underwent pharyngolaryngectomy and pharyngo-oesophagectomy.[1-7].

DP flap is thin and pliable with excellent colour and texture matching with the head and neck area, because of its competent and reliable anatomy it is quickly and easily harvested.

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Deltopectoral flap has in axial pattern. This pattern is getting perforators from internal memory artery on its medial site with random on lateral side of it.

In detail the blood supply is coming from internal thoracic artery (internal memory artery) by its perforating branches which are five to six in number. The main contribution is from second and third perforators. The subclavian artery is a mother artery of internal thoracic artery. This take the path inferiorly in the rib cage with sternum on its lateral side. The perforating branches taking origion usually seven mm away from sternum usually in fifth and sixth intercostal spaces. The have diameter of 2.5 – 3.5 mm. The perforators of deltoid and acromial branches are prone to cut while elevating the flap.

The perforator arteries course laterally to supply pectoralis major muscle, they become cutaneous and curves laterally and supplies overlying skin. These perforating branches constitutes the major supply of deltopectoral flap and pectoral portion of cervico pectoral flap hence it is important to raise the flap in the plain deep to deltopecoralist fascia. As the blood supply is derived from medial and lateral so two different flaps can be constructed i.e. medial and lateral flaps.[10]

The second part of axillary artery give origion to acromiothoacic artery. There are four branches of this artery. The name of this branches are, pectoral, acromial, clavicular and deltoid. The name of the largest branch is pectoral branch which is a main tributary of this myocutaneous pectoral major flap. There is anastomosis of this with perforator branches of internal thorasic arteries.[11]

The design of deltopectoral flap is rectangular, its upper part is stretching from the sternum to the anterior region of deltoid which is 2 cm lateral to the edge of sternum. The take up of graft at the recipient site will increase if we shorten the area of rotation and highlight the versatility of this flap. The low incidences of complications are associated with its use.[6]

The flap length as to reach the defect without tension. It is sutured in placed, pedicle is tubed and remained for 2-3 week until neovascularization of the recipient site occurred. In second stage the pedicle is divided and returned to its place. The donor site is covered with split thickness skin graft and left there to be healedunder the process of secondary healing.[3-5]

The deltopectoral flap is a "workhorse" flap for head and neck reconstruction. In female patients, the scarring may also lead to breast asymmetry and nipple distortion. Distal flap necrosis is not uncommon if the skin paddle was extended too much into the deltoid region without a delay procedure. Three angiosomes are included, when we extend the flap towards deltoid region. Angiosomes are the arterial territories. These three territories have surgical importance. The first angiosome travel from the lateral border of sternum to very close area of deltopectoral groove. This is a perforator of internal mammary artery. The second angiosome is a vascular area between the lower border of clavicle to medial side of deltopectoral groove. This territory belong to the direct small cutaneous branch of thoraco acromial artery. Third angiosome is lying over the deltoid region and it is a territory of musculocutaneousperforaters of deltoid branch of thoraco acromial artery. As we are extending laterally the pressure gradient start playing its role. It will diminish if we are moving from medial to lateral side We can call it concept of angiosomes. The pressure gradient in first and second angiosomes is reliable but in third its reliability started diminishing if we move laterally and that means right over the deltoid muscle. This diminished gradient is responsible for ischaemic necrosis of the flap. So, extending the deltopectoral flap lateral to the deltopectoral groove will decrease the capacity of its authenticity. This surgical anatomy give idea to all intelligent head and neck surgeons to get maximum benefit of this famous flap.

MATERIALS AND METHODS

This a retrospective observational study and we have a medical record of twenty one patients who underwent for reconstruction with DP flap using long arc and short arc for patients of oral cancer at Al-Tibri Medical College, Isra University, Karachi Campus, from January 2016 to March 2017. All patients were male between 40 - 65 years. Patients were divided into two groups. A group with eight patients dealt with long arc of deltopectoral flap and group B with thirteen patients of short arc of rotation.

RESULTS

In group A one patient showed blackening of recipient site without smell, that blackening was just a superficial epidermis whereas the deeper part was healthy. Second patient complete necrosis of flap at recipient area. In group B patients graft remains healthy till the end.

DISCUSSION

DP flap is the most popular reconstruction material because of its easy accessibility, technical simplicity and large area of skin cover with a better colour and texture match with donor area. However, it limits the area of rotation with limitations of DP flap like clavicle above, delto pectoral groove laterally and 5th intera costal space below. To take the maximum benefits, we should be meticulous to surgery and handle the flap atraumatically, scalpel instead of diathermy to raise the flap, bipolar cautery for hemostasis, avoid injury to perforating arteries, avoid tension on the flap by using the short arc instead of long arc to avoid of gravitational gradients. However, we are limited in patients in which Internal mammary artery previously used for cabbage, surgery to anterior chest wall e.g. mastectomy, pace maker. In our study we used short arc in thirteen patients and long arc in eight patients and got the good results and quick recovery in short arc patients as compare to long arc patients.

International study showed medially based deltopectoral flap done in 53 cases. Out of which 41 flaps remain viable throughout and 12 cases suffer with minor marginal losses of little consequences.

Another international study showed the successful use of this lateral deltopectoral flap in an extended cervical and thoracic reconstruction after resection of a giant basal cell carcinoma demonstrates that it must be considered as an alternative technique, Lateral deltopectoral flap, a new and extended flap.[12]

Further international studies show 2 patients with invasive thyroid cancer, who underwent reconstructive surgery using a deltopectoral flap. Although thyroid cancer surgery with surrounding skin excision is a rare procedure, they found that the deltopectoral flap was useful and should be the first choice for patients undergoing reconstructive surgery.[13]

A National study where the majority of DP flaps were used to cover neck skin defect (63.0%). Other reconstructed defects included posterior pharyngeal wall (22.2%), facial skin defect (11.1%), and tracheal wall (3.7%). All donor sites were covered with partial thickness skin graft. Two patients developed partial flap necrosis at the tip and were managed conservatively with regular dressing. There was no complete flap failure. The overall flap survival rate was 96.3%. All donor site wounds healed uneventfully.

CONCLUSION

Results of group B patients were better because of smaller arc of rotation (not taking the recipient part towards shoulder rather keeping it on chest with little flexion of neck).

Author's Contribution:

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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Role of Counselling to Improve Compliance in the Management of Type 2 Diabetic Mellitus, an Experience of 61 Cases at Tertiary Care Facility Hyderabad Sindh

Shamsuddin Solangi[1], Manzoor Ali[1], Kiran Hafeez[1], Saima Siraj[1] and Hussain Bux Kolachi[2]

ABSTRACT

Objective: To assess role of counselling to improve compliance in management of T2 Diabetic Mellitus patients.
Study Design: Cross sectional study.
Place and Duration of Study: This study was conducted at the Department of Medicine, Isra University Hospital Hyderabad from January 2018 to September 2018.
Materials and Methods: Sample size was 61 cases, informed consent was obtained from all patients enrolled, proforma was designed and filled for each patient. Data was analyzed on SPSS version 21, Chi – square test was applied for statistical significance.
Results: In our study gender distribution of patients in the study population, males 27 (44.24%) and females 34 (55.71%), the commonest age group 50 – 59 years, males 12 (19.67), females 20 (32.78%), rural 44(72.12%) urban 17 (27.86%). Out of 61 patients 5 lost follow up, one death due to fatal complication of DM and 55 were followed up. Out of 55patients40 (72.72%) improved compliance after counselling male 21 (38.18%) and female 19(34.54. %) respectively, mean of HbA1c was8.1 $\pm$.2.Out of 55 patients 15 (27.27%) did not improve in compliance after counselling, male 5 (9,09%) and female 10 (18.18%), mean of HbA1c was 11.4 $\pm$ .3. Chi – square value was significant (p-value <0.05)
Conclusion: There is significant improvement in compliance level after counselling in T2DM patients. Health care providers, pharmacists and other professionals should play their role to improve the patient's knowledge of disease and treatment of T2DM.

Key Words: Counselling, improvement, management, T2 Diabetic Mellitus

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INTRODUCTION

Type 2 Diabetic Mellitus (T2DM) is the most common form of Diabetic Mellitus, which is 90% - 95% of all diabetic patients[1] and is expected to increase 439 million by 2030 [2, 3]. It is a global public health problem and keeps a steady increase in developed counties, such as US and Japan. And it has become serious issue at epidemic rate in developing countries such as India, Pakistan, Bangladesh, Brazil and Indonesia[4]. Among which the prevalence rates are 12.1%, 16.98% and 9.7% in India, Pakistan and China respectively[5,6,7].

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Rising rate of childhood obesity worldwide is serious risk factor forT2DM[8].

There are many risk factors leading to non – compliance in the management of T2DM[9].Adherence to life style changes (diet and exercise) and drug treatment improves compliance[10].

Drugs and life style modification to control T2DM and related conditions can only be effective through compliance to the physician advice. World Health Organization (WHO) has shown that adherence to long – term therapy for chronic illnesses in developed countries averages around 50%[11]. Compliance rates are reduced for patients with chronic diseases than with acute diseases, so decline in adherence is most rapid after 6 months of therapy[12]. Such reduced adherence not only results in poor health outcomes but it also has a significant impact on health care costs.[11]

MATERIALS AND METHODS

Total 61 patients of T2 Diabetic Mellitus were enrolled from outpatient clinics of medicine department of Isra University Hospital Hyderabad after informed consent was obtained. Study design was cross-sectional

interventional and based on non - probability purposive sampling. Study period was from January 2018 to September 2018. Compliance was defined as adherence to physician's advice regarding diet, exercise, drug treatment and improvement in HbA1c level. These patients were counseled and followed up monthly for 3 months to observe the improvement in compliance after counselling. Data was analyzed on SPSS version 21, Chi – square test was applied for statistical significance.

Inclusion Criteria:

1. Age above 30 years
2. Willing for participation

Exclusion Criteria:

1. Age below 30 years
2. Not willing for participation

RESULTS

Table 1. shows distribution of patients in the study population, males 27 (44.24%) and females 34 (55.71%), the commonest age group 50 – 59 years, males 12 (19.67%), females 20 (32.78%),

Table 2. shows distribution of patients according to residential area, rural 44 (72.12%) male 23 (37.70%), female 21 (34.42%. Urban 17 (27.86%), male 4 (6.55%), female 13 (21.31%).

Table 3. shows distribution of patients according to outcome of follow-up. Out of 61 patients 5 lost follow up, one death due to fatal complication of DM and 52 were followed up.

Table 4. shows distribution of patients according to improvement in compliance after counselling in the management of T2DM, out of 55 patients 40 (72.72% improved, male 21 (38.18%), female 19 (34.54%), mean of HbA1c was 8.1 $\pm$.2

Table 5. shows distribution of patients according to non - improvement in compliance after counselling in the management of T2DM. Out of 55 patients 15 (27.27%) did not improve, male 5 (9.09%), female 10 (18.18%), mean of HbA1c was 11.4 $\pm$ .3

Table No.1: Distribution of patients according to age and gender(n=61)

Age groups	Male		Female	
	No.	%	No.	%
30 – 39 years	7	11.47	1	1.64
40 – 49 years	6	9.83	8	13.11
50 – 59 years	12	19.67	20	32.79
> 60 years	2	3.27	5	8.19
Total	27	44.24	34	55.73

Table No. 2: Distribution of patients according to residential area (n=61)

Residence	Male		Female	
	No.	%	No.	%
Rural	23	37.70	21	34.42
Urban	4	6.55	13	21.31
Total	27	44.25	34	55.73

Table No. 3: Distribution of patients according to outcome follow up n=61

Group	Number
Follow up	55
Lost follow up	5*
Death	1*

*All were females

Table No. 4: Patient improvement in compliance after counselling(n=55)

Gender	Number	%age	Mean of HbA1c % $\pm$ SD
Males improved	21	38.18	8.1$\pm$.2
Females improved	19	34.54	
Total	40	72.72	

*p – value <0.05

Table No.5: Patient non - improvement in compliance after counselling (n=55)

Gender	Number	%age	Mean of HbA1c % $\pm$SD
Males not improved	5	9.09	11.4$\pm$ .3
Females not improved	10	18.18	
Total	15	27.27	

*p – value <0.05

DISCUSSION

Non-adherence is a major factor that could lead to morbidity and mortality in diabetic patients. World Health Organization have emphasized that "increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments. Adherence to long-term therapy for chronic illnesses among developed countries averages only 50%[11]

In our study population improvement in compliance rate after counselling is 72.72%. Which is comparable with study done by Olufunsho Awodele et al (Lagos, Nigeria 2015)[13]in which Overall improvement in compliance rate was 86.8 %. Likewise, other studies reported by Krishnaveni Kandasamy et al (Tamil Nadu, India 2017)[14], Ann Marry Swaroop et al(Bangalore, India 2016)[15]Anoop Kumar et al (Kerala, India 2015)[16], Shareef J et al (Karnataka, India 2016)[17,] Mathew EM et al (Tamil Nadu, India 2014)[18], Kumari G et al (New Delhi, India)[19]and Malik S. et all (Karachi Pakistan 2016)[20] havedemonstratedsignificant improvement in glycemic control and other end points.

Our study is inconsistent with study conducted by Bhurji N et al (UK, Canada 2016)[21] on South Asian countries patients from Pakistan, India, Bangladesh living in Europe vs Western countries patients with type 2 diabetes. Overall, there was little improvement in HbA1c level although other outcomes did improve. The smaller studies in India demonstrated significant

improvement in glycemic control and other end points.[21]

CONCLUSION

It can be concluded that there is significant improvement in compliance level after counselling in T2DM patients. Health care providers, pharmacists and other professionals should play their role to improve the patient's knowledge of disease and treatment of T2DM.

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Original Article

Smile Predilections of Dental Specialists, Art Students and Lay Persons for Varying Lip Thicknesses

Nabila Anwar, Rizwan Shah and Faisal Pasha

ABSTRACT

Objective: To identify ideal smile preferences of different professionals for varying lip thicknesses and to evaluate any perception differences between different professionals.

Study Design: Cross sectional study

Place and Duration of Study: This study was conducted at the Rehmat Memorial Post-graduate Teaching Hospital (Women Medical and Dental College Abbottabad) from May 2016 to February 2017.

Material and methods: One male and one female subject was selected with fairly ideal facial features and smile proportions. Three alternate lip thicknesses were generated by the use of photographs taken for the selected individuals. Smile parameters were also altered to produce different combinations of lip thicknesses and smile parameters (lip line, smile width and smile arc). These pictures were then rated by different professionals for attractiveness.

Results: The total number of raters was 100 with the mean age of 30.3 years ± 8 years. The altered smile parameters produced statistically significant difference in the esthetic scores of raters. For thick lip subjects, preferred smile was a medium width flat smile which is characterized by a lip line with increased upper and lower incisor show. For medium lip thickness, preferred smile was a consonant broad smile with a lip line that showed the upper incisors only.

Conclusion: Smile predilections of dental specialists, arts students and lay persons were found for varying lip thicknesses.

Key Words: Lip thickness, Lip line, Smile width, Smile arc

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INTRODUCTION

The criteria for attractiveness is difficult to set as it is a matter of self perception which can vary according to the individual's owns preferences and concerns but a few objective assessment criteria has been suggested in order to make the appearances more commendable.[1-9] Objective standardization of an attractive smile implies a smile which possesses some properties that makes a smile distinctly praiseworthy in everyone's eyes. Many patients in our clinical practice come with the objective of esthetic rehabilitation of their smile due to personal dissatisfaction of their smile esthetics. During evaluation of smile esthetics, the teeth are shown in the curtain of upper and lower lips.[2-4,6]

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Literature shows that smile appealness has been studied as a distinct variable from other facial features.[2-10] There are individual orthodontist's preferences which can enhance or destroy the patient's demands for an ideal smile.[1,6] The ideals and standards of beauty change with time, therefore for the orthodontist it is crucial to know the recent preferred smile esthetic features. The array of different lip thicknesses in patients usually complicates the subjective assessment of smile esthetics and the changing preferences further puzzle the orthodontist in planning the end of treatment smile.[1] Orthodontists are hence obliged to comprehend the harmony and equilibrium along with the definition of beauty that the patient perceives and seeks. Schabel et al. in his study concluded that there was no association amongst cases passing the set criteria of ABO objective grading system which is the orthodontist's success standard of smile esthetics.[11] A balance of the soft tissues and the teeth makes a smile more pleasing. This actually implies that even if the teeth are perfectly set on their respective bases, ideal esthetics in harmony with the face can still be in doubt.[11]

An orthodontist should aim to achieve a beautiful smile for a particular lip thickness with the acknowledgement of the accompanying risks on the general facial appeal. The researchers of this study thought that ideal smile

parameters might be different for patients with different lip thicknesses. Therefore, this study was conducted to identify ideal smile parameters for varying lip thicknesses and to evaluate any perception differences for esthetics of smile between individuals belonging to various professions.

MATERIALS AND METHODS

This study was of cross-sectional design and was performed at Rehmat Memorial Post-graduate Teaching Hospital after approval from the ethical review committee of the hospital. Informed consent was sought from all the individuals involved in the study. Several subjects were carefully chosen in order to obtain the ideal posed frontal smiling photographs. Out of the acquired data, one photograph for each male and female was finalized on the basis of symmetric smile and harmonious face. The pictures were altered to make three lip thicknesses for the same subject by altering the vermillion show of the subject using adobe photoshop version 8.0 (Adobe Systems, San Joe, CA, USA).

Furthermore, various smile parameters were also altered including lip line, smile width and smile arc as shown in Fig 1-3. Figure 1 shows the alteration of smile arc as consonant, flat and reverse types. Smile width was altered as narrow (22% buccal corridors), medium (15% buccal corridors) and broad smiles (2% buccal corridors) as shown in Figure 2. Lip line was modified as: both dentitions visible, upper incisors visible, upper incisors and 2mm gum and 4mm gum visible as shown in Figure 3. The altered images were transferred to Microsoft Power Point (Microsoft, Redmond, WA, USA) and were presented in a prearranged order to individuals belonging to various professions including restorative dentistry, orthodontics, arts students and lay persons for evaluation. The images were rated on a five point visual analogue scale designed to indicate the most preferred to least preferred image. The images were projected for 10 seconds in order to standardize the rating of every picture.

RESULTS

The required sample size was calculated to be 100. The raters were then equally divided in to 4 categories having 25 persons in each including restorative dentists, orthodontists, arts students and lay persons. The mean age of the raters was 30.3 years ± 8 years. Results of ANOVA showed that there was no statistical difference in age amongst all the groups (p= 0.20). Result of Chi square showed equal gender distribution in all groups with p-value of 0.23. Multiple factor ANOVA results of are shown in Table I. When the factors and the category are considered along with each other, there is statistically insignificant difference in the perception of esthetics for the altered parameters in all the three lip thicknesses. These results are for all the altered parameters including lip line, smile width and smile arc. However, when only factor is considered, the alterations in smile attributes result in statistically significant difference in the perceived attractiveness of the smile.

Table II shows the total score for the altered smile parameters in the three lip types. For thick lips male and female subjects, the highest mean score was for a lip line showing the upper and lower incisors. For the medium lip male and female subjects the preferred lip line was the one showing the upper incisors only.

Figure No.1: Altered smile arc in the three lip thicknesses

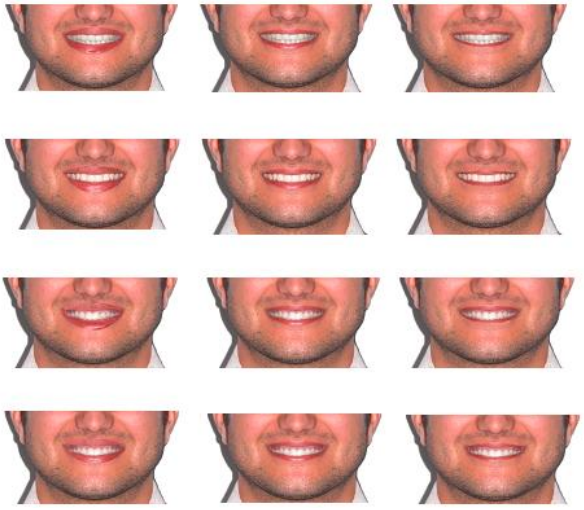

Figure No.2: Altered lip line in the three lip thickness subjects

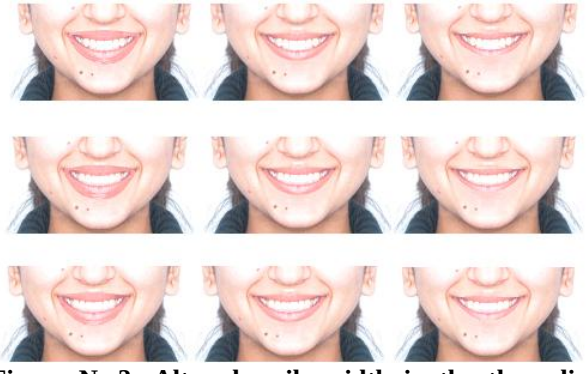

Figure No.3: Altered smile width in the three lip thickness subjects

Whereas for the thin lip subjects, a 2mm gum show for male and 2-4 mm gum show for female were preferred. Result for smile width preferences showed the following results: medium smile width for thick and thin lips and broad smile was preferred for medium lip thickness in both genders. Consonant smile was preferred in thin lips whereas flat smile arc was preferred in thick lips. In medium lip thickness however, flat smile arc was preferred for male and consonant smile arc was preferred for female subject.

Table 2 shows the total score for the altered smile parameters in the three lip types. For thick lips male and female subjects, the highest mean score was for a lip line showing the upper and lower incisors. For the medium lip male and female subjects the preferred lip line was the one showing the upper incisors only.

Whereas for the thin lip subjects, a 2mm gum show for male and 2-4 mm gum show for female were preferred. Result for smile width preferences showed the following results: medium smile width for thick and thin lips and broad smile was preferred for medium lip thickness in both genders. Consonant smile was preferred in thin lips whereas flat smile arc was preferred in thick lips. In medium lip thickness however, flat smile arc was preferred for male and consonant smile arc was preferred for female subject.

Table No.I: Result of Repeated Measure ANOVA

Variable		Gender	Lip Thickness		
			Thick Lip - p-value	Medium Lip - p-value	Thin Lip - p-value
Lip line	Factor	Male	0.001	0.01	0.04
		Female	0.03	0.001	0.001
	Factor & category	Male	0.35	0.23	0.19
		Female	0.62	0.42	0.25
Smile width	Factor	Male	0.02	0.03	0.03
		Female	0.001	0.001	0.05
	Factor & category	Male	0.4	0.8	0.2
		Female	0.4	0.45	0.10
Smile Consonance	Factor	Male	0.03	0.04	0.03
		Female	0.04	0.01	0.01
	Factor & category	Male	0.1	0.69	0.3
		Female	0.9	0.6	0.2

Table No.2: Mean Scores for Lip Line Preferences in the Three Lip Types

Parameter	Alteration of Parameter	Male Subject			Female Subject		
		thick lips	medium lips	thin lips	thick lips	medium lips	thin lips
Lip line	upper incisor	3.02±0.8	3.38±0.9	2.64±1.2	2.84±0.6	3.52±0.9	2.22±0.2
	upper and lower incisor	3.42±0.7	3.14±1.3	2.48±1.0	3.24±0.8	3.26±0.9	2.20±0.4
	2mm gum	3.1±0.2	3.16±0.4	2.98±0.2	2.18±0.6	2.82±1.0	2.76±0.9
	4mm gum	2.32±0.4	2.94±0.3	2.28±0.5	2.18±1.0	3.16±1.0	2.71±0.4
Smile width	Narrow	2.72±0.3	3.08±0.2	2.24±0.1	2.54±1.0	2.82±0.9	2.02±0.6
	Medium	3.42±0.6	3.14±0.3	2.98±0.7	3.34±0.7	3.26±0.9	2.80±1.0
	Broad	3.1±0.8	3.36±0.8	2.58±0.3	3.18±0.7	3.42±1.0	2.73±0.7
Smile arc	Flat	3.32±0.9	3.34±0.8	2.28±0.6	2.98±0.8	3.26±0.7	2.40±0.9
	Consonant	3.02±0.3	3.18±0.7	2.84±0.8	2.54±1.0	3.42±0.9	2.72±1.0
	Reverse	2.82±0.5	2.84±0.3	2.18±0.4	2.34±0.6	2.6±0.9	2.20±1.0

DISCUSSION

Orthodontists have experienced a paradigm shift from an emphasis on correction of tooth alignment to enhancement of smile esthetics especially in adult orthodontic patient. The ability of an orthodontist to recognize the positive factors for enhancement of smile esthetics is a contemporary requisite.[8] The discrepancy of perception between the individuals belonging from different professions can cause confusions in the ultimate description of ideal smile parameters. The uncertainties can also lead to difficulty for an orthodontist in choosing the 'end of treatment smile' for the patient. The digital 3D images can be useful in this regard.[12,13] Smile attractiveness and the thickness of lips are related parameters. An attractive smile would depend on the best possible harmony of the smile features with the thickness of lips which makes the lip curtain. This study was therefore aimed at outlining the denominators of attractive smiles for particular lip thickness.

The basic ideology of altering of the same male and female photograph was to avoid the confounding factors of the face that would otherwise deviate the raters from making an honest opinion about the images. Our study results showed that variations in a particular smile parameter have statistically significant difference on the perceived attractiveness in subjects with all the three lip thicknesses. At the same time the results of multiple factor ANOVA showed that the individual

assessment of attractiveness did not vary significantly amongst people belonging to various occupations. This agrees with some studies like that of Ritters et al.[14], who evaluated the effect of smile width during smile as perceived by lay persons and orthodontists. Krishnan et al.[7], found no difference of perception between lay persons and dental specialists for smile evaluation. Erum and Fida[15], in their study concluded that different professional personnel among which art students, orthodontists, dentists and lay persons were considered, had comparable esthetic perception. Our study results show least scores for thin lips which therefore prove higher preference for thick lips especially in females.

Alterations of smile parameters including lip line, smile width and smile arc were done separately in both male and female subjects with different lip thicknesses while keeping the other facial features constant to control the confounding factors that would be otherwise introduced by other facial features. Our study results showed preference of different lip lines for varying lip thicknesses. For thick lips, a lip line showing both the dentitions was favored. For medium lip thickness no gums show whereas for thin lips a greater gum show was chosen as the preferred lip line. The preference of lip line for different lip thicknesses in the same smile frame is the first study on the topic and therefore our results cannot be compared with the results of previously done studies on smile esthetics. Flores Mir et al.[16], concluded that mild gingival display is harmonious with an attractive smile according to lay persons. Geron[5] concluded a 1mm gingival exposure as within the esthetic range. In contrast, Erum and Fida[15] concluded that the preferred lip line was the one with no gum show. However, the subjects chosen for smile assessment in the above mentioned studies were only of average lip thickness. More gum show was preferred in our female subjects. Even a 4 mm gum show was acceptable for our thin lip female subject which might be due to relatively more youthful lip line requirement for thin lips as thin lips are feature of aging especially for female subjects.

The general trend in scoring reveals preference for broad smiles in both the genders. Our results showed preference of medium smile width for thick and thin lip male and female subjects whereas broad smile preference for medium lip thickness. Husley et al.[4] reported that smile width variations are less significant in determining smile attractiveness as perceived by lay persons. Gianelly[17] and Sarver[18], however have concluded that narrow smiles with increased buccal corridors are undesirable. Moore et al.[19] suggested the presence of buccal corridors to be considered as one of the problems to be corrected during orthodontic treatment. Our study results showed preference for consonant smiles for both genders in thin lips. This is very trivial as Sarver[18], has pointed out that smile arc flattening can occur during orthodontic treatment. Parekh et al.[20] also concluded that both orthodontists and lay persons perceived flat smile arc unattractive. Krishnan et al.[7] therefore suggested that orthodontists should not disturb consonant smiles but rather create them with proper bracket positioning. Our study results however revealed preference for flat smile arcs in the thick lip subjects. This is contradictory to the results of the above mentioned studies.[7,18,20] In author's humble opinion, a flat smile arc may add a pleasant affect to the person having thick lips rather than a consonant smile arc. In medium lip thickness however, flat smile was preferred in male and consonant for female. This might be because of more feminist smile feature requirements in female subject. Reverse lip line was not favored in any subject.[21]

Smile esthetics are affected with varying lip thicknesses. A particular smile characteristic may not score equal in variant lip thickness. The 'end of treatment smile' objective should be tailored to the attractiveness need according to the facial features in order to enhance attractiveness by harmonizing all the facial features. The esthetic outcomes can be controlled by timely planning especially before the treatment starts which ultimately depends on the knowledge and skills of an orthodontist.

CONCLUSION

The variability in smile parameters in subjects with different lip thicknesses showed significant difference in the esthetic scores of the raters of different professions while the perception difference among the raters was insignificant. For thick lip subjects, preferred smile was a flat smile characterized by a lip line showing the upper and lower incisors and having a medium width for both genders. For medium lip thickness subjects, preferred smile was characterized by the lip line showing only the upper incisors, a broad smile width with smile consonance preference especially for the female subject. For thin lip thickness subjects, preferred smile was characterized by a consonant smile arc having a medium smile width with a lip line showing 2mm gum show for male and more gum show for the female subject.

Recommendations: Variations in judgments are common hence the patient should be convinced to participate in planning the final esthetic outcome which are most compatible with the other facial features.

Author's Contribution:

Concept & Design of Study:	Nabila Anwar
Drafting:	Rizwan Shah
Data Analysis:	Faisal Pasha
Revisiting Critically:	Nabila Anwar, Rizwan Shah
Final Approval of version:	Nabila Anwar

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Frequency of Post Neonatal Tetanus Mortality in a Tertiary Care Center

Juverya Naqvi, Ali Akbar Siyal and Naseer Ahmed Memon

ABSTRACT

Objective: To determine the frequency of post neonatal tetanus mortality in a tertiary care hospital.
Study Design: Case series study
Place and Duration of Study: This study was conducted at the Pediatric ward of Peoples medical college and hospital Nawabshah from January 2017 to December 2017.
Materials and Methods: A total 98 children having clinical diagnosis of tetanus, who had lock jaw, stimulatory fits/spasm that has developed beyond 1 month of age were included in this study. The demographic and clinical data collected on a proforma was statistically analyzed and results were tabulated.
Results: Frequency of post neonatal tetanus death was observed in 19.4% children. Rate of mortality was 21.7% in unvaccinated children as compare to 6.7% in vaccinated children (p=0.29).
Conclusion: We conclude that tetanus remains a public health problem in our environment and that all stakeholders must work to achieve complete eradication of this disease by immunization. We recommend that vaccination during pregnancy and in infancy, as recommended in the National Program on Immunization (NPI). These recommendations could reduce the post-neonatal tetanus burden to its barest minimum and ultimately, the elimination of tetanus.
Key Words: tetanus, post neonatal, vaccinated, mortality

Citation of articles: Naqvi J, Siyal AA, Memon NA. Frequency of Post Neonatal Tetanus Mortality in a Tertiary Care Center. Med Forum 2018;29(12):63-67.

INTRODUCTION

Tetanus is a preventable disease which occurs worldwide. Tetanus is an acute, spastic paralytic illness caused by Clostridium tetani, a motile gram +ve spore forming obligate anaerobe. The disease is endemic in approximately 90 developing countries[1] including Pakistan. While in developed part of the world it is almost eliminated[2,] the global incidence of tetanus is about 18 per 100000 population per year with case fatality ranging from 20- 50 %[3]. Tetanus caused 61000 estimated deaths in <5 years in 2008 [4].

Tetanus, is an acute, spastic paralytic illness caused by clostridium tetani, a motile gram +ve spore forming obligate anaerobe [1]. The spores of clostridium tetani are present in soil contaminated with animal excreta as this organism is found in its vegetative form in alimentary tract of various animals. After getting entry in human body through contaminated wounds, the spore changes in to vegetative forms and produces its exotoxin, tetano-spasmin, which is the 2nd most poisonous substance known[1]. most post neonatal tetanus cases occurs due to traumatic injuries, including penetrating wound by some dirty object such as nail, splinter, fragment of glass, or unsterile injection, sometimes even with animal bites, ear and other body piercing, burns, RTA and compound fractures. In some rare cases there is no history of trauma. Tetanus is not transmitted from one person to other[1].

Four clinical forms of tetanus are recognized. They are generalized, localized, cephalic and neonatal tetanus.

Diagnosis is established clinically. As tetanus is a preventable disease, vaccination is highly safe and efficacious. Active immunization should be instituted in all partially immunized, unimmunized children and those recovering from tetanus as disease itself does not confer immunity. Passive immunization is given as treatment of a case as well as prevention following high risk injury. The efficacy of tetanus vaccine is around 98.3% but the protective antibodies wane with age[5], and global coverage of DTP3 is 85% in 2017, and here in Pakistan the reported coverage is around 75%[6].and it is proved that vaccination is the most cost effective intervention in developing countries as WHO estimated that 2 million deaths were prevented in children in year 2003 by vaccination[7]. Despite all these preventive measures, tetanus remains a major threat in developing countries like Pakistan. In European countries, due to higher vaccination coverage rates and proper surveillance and reporting every single Case of tetanus in children is reported[8], but here in our country there is a major lapse between attending physician and

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surveillance authorities. The objection to vaccination is also reported in western countries, *13* cases of non-neonatal tetanus were reported in U.S.A from year 1992-2000, that study concluded that the majority of cases of tetanus among children in the United States were in unvaccinated children whose parents objected to vaccination[9]. A retrospective study done in India also showed that unvaccinated children (54.8% of all cases were in 0-10 year age group) are the major victims of post neonatal tetanus[10]. Certain risk factors other than trauma, like otorrhea/ear discharge also predispose children to tetanus, if concomitant by unimmunized or partially immunized status the risk of tetanus increases[11,]. In which the study done at Nigeria showed 100% presence of otitis media in children presented with post neonatal tetanus[11]. In Dhule Maharashtra 54.8% cases of tetanus were aged 0-10 years admitted in Government medical hospital during 10 years[12].There is this hospital based study done in Nepal 19 cases of post neonatal tetanus were admitted from July 2004-May 2006, which also shows that the ear discharge was present in 16.0% of the pediatric tetanus patients, suggesting that it is a very significant factor that leads to post neonatal tetanus[12]. In another study done at Larkana showed that 24 children admitted with post-natal tetanus during a period of one year, among these cases source of infection was trauma in 17(22%) and discharging ear in 7(9.1%) patients and all these children were not immunized[17]. Another factor that can lead to post neonatal tetanus is circumcision which accounted for 50% of the cases in a study from Nigeria[18]. A ten year review in Calabar Nigeria showed that frequency of post neonatal tetanus was 1.1% with a mortality rate of 3.7%[19].

MATERIALS AND METHODS

This case series study was conducted in the department of Pediatric, peoples medical college hospital Nawabshah, from January 2017 to December 2017. The sampling technique was non-probability consecutive sampling. All the children either sex clinically diagnosed having tetanus, aged more than 1 month, who have lock jaw, stimulatory fits/spasm that has developed beyond 1 month of age was included and all patients of tetanus aged below one month and children having other causes of spasms or fits were excluded from the study. An informed consent was obtained from parents. The demographic and clinical data was collected on a proforma designed for the study. The data was analyzed statistically and results were tabulated.

RESULTS

A total of 98 children clinically diagnosed as having tetanus who had lock jaw, stimulatory fits/spasm that has developed beyond 1 month of age were included in this study. Most of the patients were 7 to 12 Years of age (figure 1). The average age and weight of the cases were 9.5±2.83 years and 36.10±10.99 kg respectively as shown in table 1. Out of 98 children 73(74.49%) were male and 25(25.51%) female. Male to female ratio of this study was 3:1. Fifteen children (15.31%) were vaccinated in which 14 were fully vaccinated and 1 partially, while 83 (84.49%) were unvaccinated children. Frequency of post neonatal tetanus death was observed in 19.4% (19/98) children as shown in figure 2. Rate of mortality was 21.7% (18/83) in unvaccinated children as compare to 6.7% (1/15) in vaccinated children (p=0.29) as shown in figure 3.

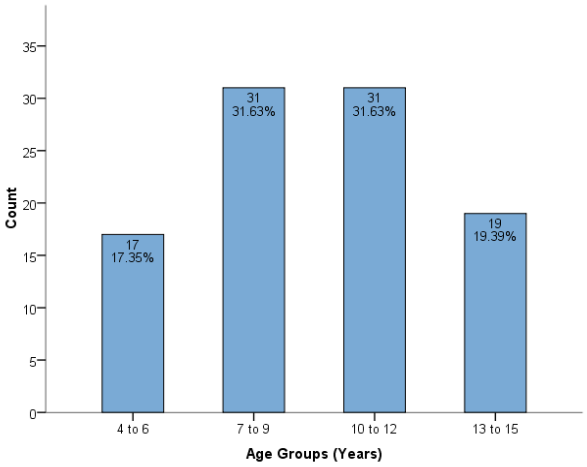

Figure No.1 Age Distribution of the Study Patients (n=98)

Table No.1: Descriptive Statistics of Age and Weight of the Patients

Statistics	Age (Years)	Weight (Years)
Mean	9.50	36.10
95% Lower Bound	8.93	33.89
95% Upper Bound	10.07	38.3
Median	9.5	36
Std. Deviation	2.83	10.99
Minimum	4	20
Maximum	15	56
Inter quartile Range	5	17

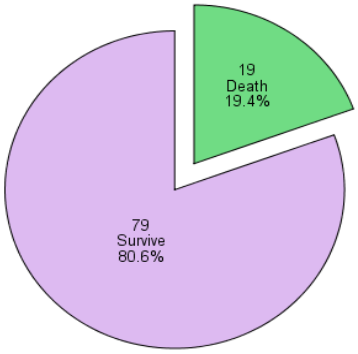

Figure No.2. Frequency of Post Neonatal Tetanus Death in Pediatrics Ward (n=98)

Table No.2: Comparison of Post Neonatal Tetanus Death Between Vaccinated and Unvaccinated Children with Respect to Gender

Gender	Death n= 19	Alive n=79	Total	p-value	Vaccination Status and Outcomes				
					Vaccination	Death n (%)	Alive n (%)	Total	p-value
Male	12(16.4)	61(83.6)	73	0.45	Yes	1(7.1)	13(92.9)	14	0.44
					No	11(18.6)	48(81.4)	59	
					Total	12	61	73	
Female	7(28)	18(72)	25		Yes	0(0)	1(100)	1	0.99
					No	7(29.2)	17(70.8)	24	
					Total	7	18	25	

Table No. 3: Comparison of Post Neonatal Tetanus Death between Vaccinated and Unvaccinated Children with Respect to Age Groups

Age Groups (years)	Death n= 19	Alive n=79	Total	p-value	Vaccination Status and Outcomes				
					Vaccination	Death n (%)	Alive n (%)	Total	p-value
4-9	11(22.9)	37(77.1)	48	0.38	Yes	1(7.1)	13(92.9)	14	0.139
					No	10(29.4)	24(70.6)	34	
					Total	11	37	48	
10-15	8(16)	42(84)	50		Yes	0(0)	1(100)	1	0.99
					No	8(16.3)	41(83.7)	49	
					Total	8	42	50	

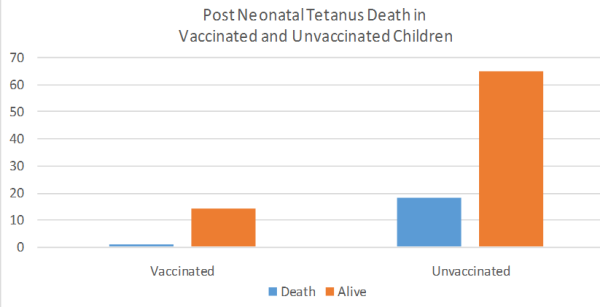

Figure No.3: Post Neonatal Tetanus Death in Vaccinated and Unvaccinated Children (n=98)

Rate of post neonatal tetanus death was also not significant between male and female (16.4% vs. 28%; p=0.245) as shown in table 2. Similarly rate of post neonatal tetanus death of children was also not significant between 4 to 9 years of age and 10 to 15 years of age groups (22.9% vs. 16%; p=0.38) as presented in table 3.

Rate of post neonatal tetanus death of children was high in unvaccinated children as compare to vaccinated children but it was observed statistically insignificant in male cases (18.6% vs. 7.1%; p=0.44) and also in female cases (29.2% vs. 0%; p=0.99) as presented in table-2. Rate of post neonatal tetanus death of children was also high in unvaccinated children as compare to vaccinated children but it was statistically insignificant in 4 to 9 years of age children (29.4% vs. 7.1%; p=0.139) and also in 10 to 15 years of age cases (16.3% vs. 0%; p=0.99) as presented in table 3.

Frequency of complication leading to post neonatal death is shown in table 8. Rate of neonatal death was significantly high in children with aspiration pneumonia as compare to without aspiration pneumonia (26.3% vs. 9.8%; p=0.041) while neonatal death was not significantly difference in children with and without G.I bleeding complication (28.6% vs. 15.7%; p=0.146)

Rate of post neonatal death was not significant in children with and without aspiration pneumonia in vaccinated children while in unvaccinated children post neonatal death was high in children with aspiration pneumonia as shown in table 9. Rate of post neonatal death was not significant in children with and without G.I Hemorrhage in vaccinated children (p=0.20) and in unvaccinated children (p=0.36) as presented in table 10.

Rate of post of neonatal death with and without aspiration pneumonia according to age group for vaccinated and unvaccinated children separately are given in table 11 and 12 respectively. Similarly rate of post of neonatal death with and without G.I Hemorrhage according to age group for vaccinated and unvaccinated children separately are given in table 13 and 14 respectively.

DISCUSSION

Tetanus is a vaccine preventable disease and a significant cause of morbidity and mortality in developing countries[21-24]. The disease is usually classified into neonatal and post-neonatal tetanus in the paediatric age group.

Post-neonatal tetanus is also a growing problem. It is yet to receive the attention it deserves in most developing countries in comparison with neonatal tetanus in terms of institution of preventive and control interventions. The reason may be due to the fact that most countries in the developing world set the machinery in their health systems to control neonatal tetanus to improve their health indices, thereby relatively neglecting the disease in the older age group. A review of the literature shows that there are few studies on post-neonatal tetanus in Nigeria and that post-neonatal tetanus is a growing problem[15, 21].

In this study the average age and weight of the cases were 9.5±2.83 years and 36.10±10.99 kg respectively. In Zafar et al study[17] the ages of babies were from 3-28 days mean age was 7.89 + 1.23 days.

In Junejo et al[13] study majority of patients 71(49.9%) were between 6-10 years. This is almost similar to other studies. In Nepal[19], majority of patients presented between 6-14 years. In Uganda[20], 54%of patients were between 5-13 years. In a study from Nigeria [20], 77% of patients were between 5-10 years.

In present study out of 98 children 73(74.49%) were male and 25(25.51%) female. Male to female ratio of this study was 3:1. Fifteen children (15.31%) were vaccinated in which 14 were fully vaccinated and 1 partially while 83(84.49%) were unvaccinated.

In Zafar et al study[17] study, 55% cases were males and 45% cases were females. This slight increase might be due to relatively better hospital care providing to male child as compared to females who are mostly neglected in our social set up. Reports gathered from both hospital and community based surveys showed that the ratio of male to female neonatal tetanus cases worldwide is 1:1[21].

The male preponderance in our study might reflect gender bias in care seeking and to cultural practices giving preference to the survival of male children in this area.

The Frequency of post neonatal tetanus death was observed in 19.4% (19/98) children in this study. Rate of mortality was 21.7% (18/83) in unvaccinated children as compare to 6.7% (1/15) in vaccinated children (p=0.29). Rate of post neonatal tetanus death of children was also not significant between male and female (16.4% vs. 28%; p=0.245). Similarly rate of post neonatal tetanus death of children was also not significant between 4 to 9 years of age and 10 to 15 years of age groups (22.9% vs. 16%; p=0.38).

In Junejo et al[13] study mortality was quite high 27 (18.24%). In a previous study from this hospital[17], mortality was also very high 50% in older children. In developed countries mortality in tetanus is not so high because of intensive care facilities. In a study from Malaysia[22], mortality was 18.2% In USA (10), no death was reported and in a study from Saudi Arabia[23], mortality in tetanus patients was 9.09%.

In our study we have seen quite a high prevalence of this vaccine preventable disease, and this is of concern because vaccines are free but the overall cost of treating such diseases is very high, even in western world one study is solely focused on the burden of cost of treating vaccine preventable disease like tetanus[24].

CONCLUSION

We conclude that tetanus remains a public health problem in our environment and that all stakeholders must work to achieve complete eradication of this disease by immunization. We recommend that vaccination during pregnancy and in infancy, as recommended in the Extended Program on Immunization (EPI). These recommendations could reduce the post-neonatal tetanus burden to its barest minimum and ultimately, the elimination of tetanus.

Author's Contribution:

Concept & Design of Study:	Juverya Naqvi
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Data Analysis:	Naseer Ahmed Memon
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Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

Significance of Cerebrospinal Fluid Lactate Level in Diagnosing Septic Meningitis

Ali Akbar Siyal[1], Shamsuddin Shaikh[2], Naseer Ahmed Memon[1] and Syed Qaiser Husain Naqvi[3]

ABSTRACT

Objective: To evaluate the significance of lactate in CSF in differentiating between the cases of septic and aseptic meningitis in our setup.

Study Design:

Place and Duration of Study: This study was conducted at the Department of Pediatric Medicine, Peoples University of Medical and Health Sciences, Nawabshah from January 2018 to June 2018

Materials and Methods: Patients were collected from Out Patient's Department of Peoples Medical College Hospital as well as private clinics. Clinical diagnosis of septic (SM) and aseptic meningitis (ASM) was the standard of diagnosis. Neonates to 12 years old patients were included. CSF and blood samples were collected immediately after admission. CSF chemical analysis including lactate level was done on first spinal tap.

Results: A total of 144 patients were included in this study. The average age of patients was 4.2 +/- 6 months.95 (66%) were males, 49 (34%) were females. Of these 144 patients 86 (59.7%) were in SM group and 58 (40.27%) were in ASM group. Most frequent symptom in either group was fever, followed by neck rigidity in SM group and vomiting in ASM group. The value of lactate in bacterial meningitis was 5.73 mmol/L (ranging from 5.17-6.73) and in aseptic meningitis patients it was 1.72 mmol/L (1.63-1.94).

Conclusion: The best method to confirm the diagnosis of bacterial meningitis is culture and sensitivity tests but as these C/S reports take quite a longer time to help in accurate diagnosis so the lactate level in CSF could be a safe and timely alternate for this delay. But the limitation of lactate level of CSF is that it does not help in establishing the exact pathogen species.

Key Words: CSF Lactate, septic meningitis, aseptic meningitis.

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INTRODUCTION

The septic meningitis requires immediate intervention due to high morbidity and mortality, so its diagnosis should be accurate and immediate[1, 2], as the prognosis becomes guarded if there is a delay in the commencement of suitable antimicrobial therapy[3]. The culture of cerebrospinal fluid (CSF) is considered as gold standard for the diagnosis of septic meningitis, but this takes few days to complete the culture report[4].

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For immediate management, the attending physician relies on clinical features and on the conventional markers of CSF like protein, sugar, leukocyte count and gram staining[5]. To specify the diagnosis of septic meningitis other investigative tools like latex agglutination and PCR are used but they lack sensitivity, other tests like C- reactive protein (CRP), and procalcitonin can be helpful but are not used in routine practice[6-9]. Sometimes atypical CSF findings are given in reports or culture reports may be negative due to so many reasons, again making it quite desirable to have another test or marker to at least guide if its septic or aseptic meningitis[10].

In routine it is generally observed that the clinical findings in septic and aseptic meningitis are overlapping but treatment in both is quite different as in cases of aseptic meningitis only supportive management is needed[10].

Bacteria produce lactate through anaerobic metabolism[11], its level increases in any condition that results in decreased oxygen supply to brain and it is not related to lactate level of blood, thus lactate has an advantage over CSF glucose because glucose level in CSF correlates with blood level[1, 12].It is documented that the serum lactate level is not affected by contamination of blood in CSF[13,14]. Many studies has mentioned that the CSF lactate concentration is not related to the neutrophil count in the CSF[15,16,17].

So it can be understood that beside CSF lactate can be used as a quick diagnostic tool to differentiate between septic and aseptic meningitis[11], but there is a great variation documented in literature[18, 19]. So we designed this study to evaluate the significance of CSF lactate level in differentiating between septic and aseptic meningitis in our setup.

MATERIALS AND METHODS

The current study was conducted in the Department of Pediatric Medicine, Peoples University of medical and health sciences for women, Nawabshah, patients were also collected from out patient's department of Peoples Medical College Hospital as well as private clinics, from January 2018 to June 2018. Clinical diagnosis of septic (SM) and aseptic meningitis (ASM) was the standard of diagnosis. All children of age 0-12 years with mentioned criteria and suspicion of meningitis were scrutinized and included in study after formal consent.

The cases included in the SM group were patients having leucocyte count >5 cells/microlit (all cells should not be lymphocytes) in the CSF, with one of the following three criteria:

1. Clinical signs and symptoms favoring bacterial meningitis[20]
2. CSF glucose less than 1/3rd of plasma glucose
3. CSF protein more than 50 mg/dl

The patients included in the ASM group were having the following two criteria.

1. CSF having less than or equal to 4 cells/microlit
2. Absence of all criteria of SM group.

CSF and blood samples were collected immediately after admission. CSF chemical analysis including lactate level was done on first spinal tap.

All the data collected was tabulated and results were statistically analyzed.

RESULTS

A total of 144 patients were included in this study. The average age of patients was 2.5years +/- 6 months. 95 (66%) were males, 49 (34%) were females (fig-1), the majority of patients (46 cases) were infants. Out of these 144 patients 86 (59.7%) were in SM group and 58 (40.27%) were in ASM group (Table-1). Most frequent symptom in either group was fever, followed by seizures in SM group and vomiting in ASM group (Table-2). The value of lactate in bacterial meningitis

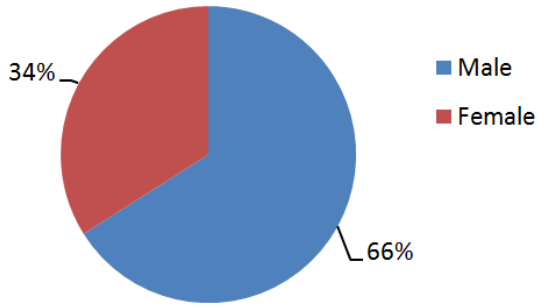

Figure No.1: Gender Distribution

Table No.1: Age distribution

Group	Age	Total	Male/Female	Bacterial Meningitis	Non-Bacterial Meningitis
Neonate	0-4 weeks	38	26/12	22	16
Infant	1-12 months	46	31/15	26	20
Toddler	1-3 years	16	10/6	10	06
Pre-School	3-5 years	32	21/11	20	12
School child	5-12 years	12	7/5	08	04
Total		144	95/49	86	58

Table No.2: Clinical Signs and Symptoms:

Clinical features	Bacterial Meningitis (n=86)	Non-bacterial meningitis (n=58)	p-value
Fever n(%)	86 (100)	46(79.3)	0.000
Seizuresn(%)	71 (82.55)	40(68.9)	0.057
Vomiting n(%)	34(39.6)	42(72.4)	0.000
Headache n(%)	12(14)	06(10.3)	0.521
Nuchal rigidity n(%)	49(57)	38(65.5)	0.304
Kernig's sign n(%)	22(25.6)	10(17.2)	0.238
Brudzinsky's sign n(%)	16(20.3)	07(14.9)	0.294
Mental status changes n(%)	24(30.4)	05(10.6)	0.005
Photophobia n(%)	05(6.3)	02(4.3)	0.517
Irritability/excessive cryn(%)	24(30.4)	10(17.2)	0.139
Lethargy n(%)	20(25.3)	05(10.6)	0.023

Table No.3: CSF characteristics

Parameter	Bacterial meningitis n-86	Non-bacterial meningitis n-58
Lactate mmol/L	5.73(5.17-6.73)	1.72(1.63-1.94)
TLC/cmm	11300(9800-16200)	8400(7300-11200)
Leukocyte count of CSF %	98(74-220)	76(68-84)
Protein %	250(134-330)	62(30-110)
Sugar %	18(9-24)	58(54-62)

was 5.73 mmol/L (ranging from 5.17-6.73) and in aseptic meningitis patients it was 1.72 mmol/L (1.63-1.94).

DISCUSSION

If patients with bacterial meningitis are not treated promptly, the mortality rate can reach 20 to 50 %[15,20], an early and accurate diagnosis bacterial meningitis can be possible by examining the CSF lactate concentration[15].The test can be performed at bedside, and the results can be received within 15 min. additionally, a rapid decrease in the CSF lactate level following antibiotic treatment could suggest a relatively good prognosis[21].In our current study a total of 144 patients were evaluated. The frequency of septic meningitis among these patients was 86 (59.7%), which is quite high in comparison with the documented frequency in a study ofNazir et al (15.8%) [22] and 39.68% in another study from Nepal[22]. This discrepancy is because they have calculated the frequency among all pediatric admissions of their center but we have only calculated the frequency among suspected cases of meningitis. Fever was one of the most common symptoms among both groups, over all the spectrum of symptoms matches with like studies on bacterial meningitis[22,23]. In our study there is a major difference in the value of lactate in SM and ASM group, which was actually the main objective for this study and this finding is also seen in similar studies[23,24]. So the purpose of finding a quick test that can differentiate between the cases of bacterial and aseptic meningitis while the treating physician waits for culture report is served by the findings of our study, lactate values do help in this regard. Although the gold standard for diagnosis of meningitis is CSF culture and even our study patients were later on treated according to their CSF culture and sensitivity reports. The findings in support of lactate values in CSF were assessed in two different meta-analyses, both of these studies showed quite different population but their results in term of sensitivity and specificity of CSF lactate for differentiation between septic and aseptic meningitis[25].Although our study was one of the first study in our setup studying the effectiveness of CSF lactate as a marker of bacterial infection, there is a high need of studying in large cohorts of patients in similar condition, age and setup so that one can reliably label the CSF Lactate as a quick diagnostic marker.

CONCLUSION

CSF lactate level is a quick, simple and economical marker as compared to other markers used to differentiate between septic and aseptic meningitis, but careful interpretation as always needed which should include a close eye on the clinical symptoms progression or improvement in the patient.

Author's Contribution:

Concept & Design of Study:	Ali Akbar Siyal
Drafting:	Shamsuddin Shaikh
Data Analysis:	Naseer Ahmed Memon, Syed Qaiser Husain Naqvi
Revisiting Critically:	Ali Akbar Siyal, Shamsuddin Shaikh
Final Approval of version:	Ali Akbar Siyal

Conflict of Interest: The study has no conflict of interest to declare by any author.

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Original Article

C-Reactive Protein in Hypertensive Patients

C-Reactive Protein and Coagulation Activation Markers in Hypertensive Patients

Subhan Uddin[1], Murad Ali[2] and Ikram Shah[2]

ABSTRACT

Objective: To study C-reactive protein, D-dimer, PT and APTT in hypertensive patients.
Study Design: Descriptive study
Place and Duration of Study: This study was conducted at the Pathology Department of Bacha Khan Medical College Mardan and Medical Department of MMC Teaching Hospital Mardan from June 2017 to September 2018.
Materials and Methods: In this study a total of 100 hypertensive patients and 50 healthy individuals as a control group were included in the study. All patients were subjected to evaluate for CRP, D-dimer PT and APPT.
Results: A total 60% of Hypertensive patients Showed Elevated CRP levels. Mean CRP levels was 2.67±0.256 mg/l significantly elevated as compared to control group .75% of the hypertensive patients also showed elevated D-dimer level. Mean D-dimer levels were 500-1000 ng/ml in 50% of patients and 1000-2000 ng/l in 25% of patients, which were significantly elevated as compared to control group. PT and APTT were also prolonged in 6% and 8% of Hypertensive patients. Mean PT and APTT were 16.525±0.253 seconds and 45.2541±0.526 seconds respectively. P value for CRP and D-dimer were p<.00235 and p<.00316 respectively
Conclusion: The study concluded that hypertension is associated with significantly elevated CRP and D-dimer levels which indicate both inflammatory and Hemostatic abnormality. Prolong PT and APTT also indicate abnormality in coagulation system. Both elevated CRP and D-dimer levels are independent risk factors for cardiovascular and thromboembolic events. This gives useful information to the clinician to strictly watch the Hypertensive patients for immediate control and treatment to improve patient's life style and reduce further complications from the disease.
Key Words: Hypertension, CRP, D-dimer, PT, APPT.

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INTRODUCTION

Hypertension is a common public health problem all over the world.[1] it is common, easily detectable and easily treatable but lead to complication if not treated properly.[2] Hypertension is associated with both inflammation and hemostatic abnormality and is therefore hypertension in elevated range is an established and independent risk factor for cardiovascular disease.[3]

C-reactive protein is a marker of systemic inflammation and is suggested to be associated with increased risk of hypertension[4] but its measurement has been related to cardiovascular risk and is associated with chronic and long lasting inflammation of blood vessels leading to coronary heart disease, peripheral artery disease, and stroke.[5] CRP is plasma protein present in trace amount in a healthy individuals whose concentration increases to 100 folds in infection or inflammation[6] but its elevated level has been reported as a significant contributor to coronary heart disease(8) and described as a powerful predictor of myocardial infarction and stroke.[7]

Hemostatic abnormalities and coagulation disturbances also occur in hypertensive patients and thrombosis often complicate the course of patients with hypertension and lead to organ damage.

Fibrinogen is the major determinant and is involved in thrombosis and hemostasis pathway[8] and its level above 3-5 mg/ cause 12 fold increases in the coronary and cardiovascular risk.[9] Thromboembolic phenomenon is better detected by D-dimer levels. D-dimer is a plasmin mediated proteolytic degradation of fibrin clots formation and its degradation and its level increases in any condition were clot formation and its degradation increases.

So elevated level of D-dimer is a good marker for thrombosis and elevated D-dimer levels has been

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reported in hypertensive patients.[10] Studies had been conducted that increased plasma level of fibrinogen, D-dimer and prothrombin fragments occurs in hypertensive patients suggesting that coagulation system is activated in these patients.[11]

The aim of the study is to evaluate inflammatory and hemostatic Markers i.e CRP level, D-dimer level, PT and APTT in hypertensive patients. As Hypertensive patients are associated with elevated levels of CRP and D-dimer levels. As both are independent predictor of cardiovascular events and thrombotic complications. So its elevated level provide immediate information to the clinicians which can guide and help the clinician to provide urgent management to the patients and can reduce further morbidity and mortality from hypertension and reduce the risk of cardiovascular, events, strokes and further organ damage.

MATERIALS AND METHODS

This study was conducted in the pathology department of Bacha Khan Medical College and Medicine Department of MMC teaching Hospital Mardan from Feb 2017 to September 2018.

A total of 100 Hypertensive patients were included in the study whose BP was 160/110 mm and 50 healthy individuals were taken as control group. Patients with hypertension were both males and females. Patients having, infection septicemia, Diabetes Mellitus, History of DVT, malignancy and with pregnancy were excluded from the study, Chronic inflammatory Disease like SLE, Rheumatoid, arthritis, Osteoarthritis, alcoholics and Drugs like steroid were also excluded from the study.

2.5 ml of blood samples were collected from each Hypertensive patients in a tube containing Gel tube to separate Serum for determination of CRP level, and D-dimer levels while 2.5 ml sample blood were also collected in a tube containing SodiumCitrate to separate plasma for determination of PT and APTT.

CRP levels were determined from serum sample using an automated immunology Assay Machine (CLiA system) The CRP test is based on the reaction between the C-reactive protein and antibody in the reagent, reacting with CRP in the sample and the result is automatically expressed by the Machine

D-dimer is a fragments of plasmin mediated proteolytic degradation of fibrin clots formation and its subsequent degradation, So its measurement identify thrombo-embolic condition in a patient

Minutex D-dimer is a semi quantitative method and involves formation of agglutination to give the result. Procedure includes in undiluted sample and this involve to take 20 µl of plasma and mixed with 20µl of D-dimer reagent and observe for agglutination within 3m minuts or 180 seconds. If agglutination seen its level is above 250 ng/ml if no agglutination seen its level is below 250 ng/ml. If positive for agglutination then go for serial dilution. For serial dilution 100µl of plasma is mixed with 100 µl of saline in a tube. Then take 100 µl from 1st tube and put in another tube containing 100 µl Saline and then take 100 µl from the 2nd tube and put in a 3rd tube containing 100 µl Salline.

All this making a serial dilution of 1:2, 2:4 and 1:8. D-dimer is performed on all these dilution according to procedure above if agglutination seen in all dilution this make D-dimer level at the range of 250-500 ng/ml, 500-1000 ng/ml and 1000-2000 ng/ml and raised level identify thromboembolic events in the body. PT and APTT are also hemostatic markers and indicate both the activity of extrinsic and intrinsic pathway. Normal PT is 10-16 seconds and APTT normal value is 39-41 seconds. Its derange level from the normal value indicate hemostatic abnormality in the coagulation system. These investigations were also performed according to standard manual procedure. All data were subjected to statistical analysis by using Chi-Square test and T-test level of significance was set at P value less than 0.005.

RESULTS

A total of 100 hypertensive patients were included in the study. They were both males and females. All these patients were hypertensive and diagnosed for the last 5-7 years. In all these patients CRP level, D-dimer level and PT and APTT were measured.

In our study 60% of patients with hypertension had elevated CRP levels. Mean CRP level was 2.67±0.256 mg/L which were significantly elevated as compared to control healthy individual P<0.00235

Similarly D-dimer levels were also performed in all hypertensive patients which showed that75% of the hypertensive patients had elevated D-dimer levels.50% of hypertensive patients had D-dimer level at the range of 500-1000 ng/ml and 30% of the hypertensive patients had D-dimer level at the range of 1000-2000 ng/ml. In all these hypertensive patients D-dimer level was significantly elevated as compared to control group P<0.00316. PT and APTT were also performed on all these hypertensive patients. 6% of hypertensive patients showed prolong PT. Mean PT value was 16.525±0.243 second and 8% of the patients showed prolonged APTT. Mean APTT was 46.254±1.526 seconds significantly higher as compared to control group while rest of patients had normal PT and APTT.

Table No.1:Frequency of CRP, D-dimer PT and APTT in hypertensive patients

S.No	Frequency of Parameter	Percentage
1	CRP Level	60%
2	D-dimer Level	75%
3	PT	6%
4	APTT	8%

Table No.2: Mean value for CRP Level, D-dimer level, PT and APTT in hypertensive patients

S.No		Mean Value Of Parameters In Hypertensive Patients	Mean Value For Control
1	CRP level	2.67±0.256 mg/L	1.1±0.256 mg/ml
2	D-dimer Level	50% 500-1000 ng/ml 25% 1000-2000 ng/l	<250 ng/ml
3	PT	16.525±0.243 seconds	14.253±0.256 seconds
4	APTT	46.254±1.526 seconds	41.562±0.256 seconds

CPP P<0.00235 D-dimer P<0.00316 respectively

DISCUSSION

Hypertension is a Medical condition in which the blood pressure remains elevated and high all the time and is a major public health problem worldwide. It is easily detectable and treatable but cause complication if not treated and controlled in time hypertension if not controlled effect system of the body specially vital organ and is usually associated with cardiovascular disease, coagulation and hemostatic system, Atherosclerosis, Myocardial infarction and cerebral Hemorrhage.[12,13]

In the present study 60% of the patient showed elevated CRP level. Mean CRP levels were 2.67±0.256 mg/l .A lot of studies have been conducted in which CRP level were elevated in hypertensive patients. A similar observation has been given by Dawri et al and reported elevated CRP level in hypertensive patients[14] same observation has also been reported by Sinha et al and reported elevated CRP in hypertensive patients.[15] Various authors have performed studies on CRP in hypertensive patients and reported elevated CRP in hypertension.[16,17] C-reactive protein is produced by liver and in infection its level rises up to 1000 times but its normal value 0.3 mg/l in blood can indicate systemic inflammation. The American Heart Association statement suggest that when CRP level less than 1 mg/l There is low risk up to 1-3 mg/l indicate high risk for cardiovascular disease.[18]

CRP can stimulate the building of adhesion molecules such as VCAM-1 and ICAM and Elastin in endothelial cells and also stimulate monocyte to Mack tissue factor causing blood clots in the extrinsic pathway.[19] Hypertension is an inflammatory disease[20] and patients with hypertension has elevated levels of inflammatory markers. CRP increases expression by endothelium plasminogen activator inhibitors to promote vasoconstriction, platelet activation and thrombosis. CRP also up regulateangiotensin receptors. Thus enhancing angiotensin-II induced rise in blood pressure[21] inflammatory markers also produce arterial stiffness[23] and all these suggest vascular inflammation play role in the pathophysiology of hypertension.

In the present study 75% of the patients with hypertension showed elevated D-dimer levels indicating hemostatic abnormality. Various author studied D-dimer levels in hypertensive patients.Kure et al reported elevated D-dimer level in hypertensive patients.[24] Lammertyn et al also reported elevated D-dimer level in hypertension and give similar correlation to our study.[25] Coban et al also reported elevated D-dimer in hypertensive patients.[26]

Similar PT and APTT were also studied in hypertensive patients only 6 out of 100 hypertensive patients showed elevated PT. Mean PT were 16.625±1.256 seconds as compared to control group and 8 out of 100 patients with hypertensive gave prolonged APTT. Mean APTT value was 46.265±1.256 seconds as compared to control group. Shweta et all also reported in their study that hypertension is associated with elevated PT and APTT.[27] A similar correlation has also been shown in the study performed by Chaitanya et al and reported Prolonged PT and APPT in hypertensive patient.[28] PT and APTT prolongation has also been reported in hypertensive patients in a study conducted by Morgani et al.[29]

CONCLUSION

The study concluded that hypertension is associated with both inflammatory and hemostatic abnormality as evidenced by elevated CRP level, elevated D-dimer level, elevated PT and APTT. Elevated CRP and D-dimer are independent risk factor of cardiovascular disease, stroke and thromboembolic complication. So every physician should strictly watch and manage hypertensive patients. on priority basis. As early management of hypertensive patient improve the life style of patient and reduce Morbidity and Mortality resulting from hypertension .measurement of CRP level, D-dimer level and other coagulation profile give immediate information to the clinician regarding hemostatic function of the patients and future predictive risk for thromboembolic events.

Author's Contribution:

Concept & Design of Study:	Subhan Uddin
Drafting:	Murad Ali
Data Analysis:	Ikram Shah
Revisiting Critically:	Subhan Uddin, Murad Ali
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Original Article

The Outcome of a Double Mesh Intra Peritoneal Repair for Complex Central Hernia. A Retrospective Cohort Study

Ameer Ali Khaskeli[1], Ishaque Soomro[1], Farhart Bano[1] and Feeroz Mahar[2]

ABSTRACT

Objective: The outcome of a double mesh intra peritoneal repair for complex central hernia. a retrospective cohort study.

Study Design: Retrospective study

Place and Duration of Study: This study was conducted at the SMBB Medical College Lyari and Sindh Government Lyari General Hospital, Karachi from January 2016 to January 2018.

Materials and Methods: The data has been collected from previous records for a period of 2 years. There were n=110 patients. All the patients with ventral hernias were included from age of greater than 20years to 70years with both genders included. The patients who were excluded were women with pregnancy, bleeding disorders.

Results: Out of 110 patients enrolled there were 42 males and 68 females. Male to female ratio was 1:1.6. the mean age of patient was 44.82 ±6.29 years Mostly the age range of patients were >50yrs in males and in females <50yrs. The mean BMI of patients were > 30kg/m2. There were 30 (27.2%) patients reported with recurrent ventral hernias with associated multiple comorbidities. The n=22 (20%) patients reported with surgical site wound infections which resolved on follow up. No mortality was reported in our enrolled cases.

Conclusion: Double mesh repair is an effective method with an associated decreased recurrence and postoperative complications.

Key Words: Mesh Repair, Ventral Hernia

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INTRODUCTION

Complex ventral hernias account for 11-23% of all laparatomies in US with around 250000, dying to a challenging surgical dilemma[1-5]. Increasing incidence has been reported in US as well as in many recent studies especially among elderly, obese patients undergoing laparatomies 5-10. This increasing burden impacts the quality of life, psychological and social aspects of life. In Pakistan the in min of Complex ventral hernias is 4.25% according to one study in 2016 [6].

Complex ventral hernias usually include recurrent hernias, associated enteric fistulas, infected mesh repairs, parastomal hernias, open wounds, large and massive hernias[11, 12].

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Around 10% incisional hernias after laparatomies give rise to these abdominal wall defects and thus reoperations[13,14]. Nowadays around 20-27% laparoscopic approach is preferred however the surgical method of repair is preoperative decision of surgeon[15,16]. Different other factors like history of previous surgery, trauma, infections, any congenital defects also effect and further it is affected by size , location , depth and surrounding area condition which determines development of ventral hernias.

Formerly the management of ventral hernias involved primary closure of fascial defects.This is corner stone of treatment with improved rates of recurrence from use of tendon free mesh repair which is standard of repair method [17-18]. Some studies have shown reduction in recurrence rates after mesh placement to 1-14% [19, 20]. However the outcome of double mesh repair is dependent on patient's comorbids, abdominal wall thickness and number of surgeries performed. Blair et al in 2015 reported 60.3% patients with recurrent ventral hernias with panniculectomy performed in 34.4% and component separation performed in 24%, wound complications in 13.3%[12] .Tagar et al has observed more complications with inlay mesh repair compared to sub lay mesh repair i-e: 8.5%. 4.25% wound infections[6].The aim of our study was to determine the outcome of a double mesh intra peritoneal repair for complex central hernia in our setup.

MATERIALS AND METHODS

This study was a retrospective study in institute of SMBB Medical College Lyari and Sindh Government Lyari General Hospital, Karachi. The data has been collected from previous records for a period of 2 years from January 2016 to January 2018. There were n=110 patients enrolled in the study keeping prevalence of20%.All the patients with ventral hernias were included from age of greater than 20years to 70years with both genders included. The double mesh intraperitoneal repair was done. The patients who were excluded were women with pregnancy, bleeding disorders.

Both the open and the laparoscopic method were employed. The method to be employed was decided by surgeon preoperatively by computed tomography and associated comorbids conditions. Intraperitoneal double mesh was placed in external oblique fascia in open surgical method, however in patients with laparoscopic repair method is used mesh is placed intraperitoneally. Some surgeons raise flap of peritoneum and place the mesh and cause closing of peritoneum over the mesh. However, this approach is not used by all surgeons. Patients were followed for postoperative wound infections.

RESULTS

Out of 110 patients enrolled there were 42 males and 68 females. Male to female ratio was 1:1.6. the mean age of patient was 44.82 ±6.29years (table 1).Mostly the age range of patients were >50yrs in males and in females <50yrs. The mean BMI of patients were > 30kg/m2.

There were 30 (27.2%) patients reported with recurrent ventral hernias with associated multiple comorbidities (table 2). Mostly the cause of recurrent hernia was weakened abdominal wall after multiple surgeries, especially among women were repeated cesarean sections in multigravida presenting with incisional hernia and associated obesity BMI of >34kg/m2. While in males there was increasing frequency of smoking and chronic obstructive airway disease and chronic cough which increased weakness of abdominal wall.

The mesh repair was done with polypropylene placed intraperitoneally. Around 22 (20%) patients reported with surgical site wound infections which resolved on follow up. No mortality was reported in our enrolled cases.

Table No. 1: Demographic variables with frequency

Demographic variables	Frequency n=110
Age in years	44.82 ±6.29years
Gender	42: 68
Male: female	1:1.6

Table 2: Postoperative complications with frequency and percentage

Postoperative complications	Frequency (percentages) n=110
1. Wound infections	**22(20%)**
2. Recurrence of ventral hernia	**30(27.20%)**

DISCUSSION

Around 11-20% incisional hernias have been reported after laparotomy incisions worldwide[19-21]. In our study there were 30 (27.2%) patients reported with recurrent hernia. Ventral hernias develop due to defect in abdominal wall muscles and therefore include mostly incisional hernias. They are the long-term complications of abdominal surgeries. after laparotomies but also primary ventral hernias like umbilical hernias and epigastric hernias. Around 50% develop in 1-2yrs of primary surgeries and after 3yrs, 74% are reported[22]. Some studies have reported after primary suture repair recurrence rate of 50% which has been reduced after mesh repair[19-22].

Double mesh repair is a surgical technique employed to reduce incidence of recurrent ventral hernias. Different reparative techniques have different outcomes. Some studies support double layer, while others report on lay mesh repair to have decreased recurrence rates[10, 11]. Patient recurrence is affected by associated risk factors[7-9].

In our study the mean age of patients was years with female preponderance in development of ventral hernias compared to males. Studies have also found around similar results however gender differences were variable. Afifi et all in his single center retrospective analysis in 2018 found increasing incidence in females 3.5:1 with average age around 49 ±1.24yrs[1] mean BMI was also in obese range around 33.6. However, Tagar et al has reported around 64.8% increased frequency in males compared to females with average age of 41years[5].

In our study there were 27.2% cases reported with recurrent ventral hernias with associated comorbidties. The surgical site infections were found in 20% cases which resolved after closed follow up. Afifi et al reported 57% patients recurrent ventral hernias with associated comorbidties found in 63% patients. Postoperative complications reported in 38% cases.

CONCLUSION

Double mesh repair is an effective method with an associated decreased recurrence and postoperative complications.

Author's Contribution:

Concept & Design of Study: Ameer Ali khaskeli
Drafting: Ishaque Soomro

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Original Article

Effects of Epidural Analgesia on the Progress of Labour and Mode of Delivery

Epidural Analgesia on Delivery

Ahmed-Ud-Din Soomro[1], Tanweer Akhtar[2] and Najia Bhatti[3]

ABSTRACT

Objective: To compare effects of epidural analgesia on the progress of labour and mode of delivery in two groups.
Study Design: Quasi -experimental study.
Place and Duration of Study: This study was conducted at the Department of Obstetrics & Gynecology,Shaikh Zaid Woman Hospital Larkana from 15 Dec 2013 to 1 Jun 2014.
Materials and Methods: 100 hundred patients of primigravida fulfilling the inclusion criteria were selected. Two groups were divide equally, Group I includes patients who had epidural block for labour analgesia Group II includes those patients who experienced labour without the block. Groups were compared with length of first and second stage of labour and the mode of delivery whether spontaneous or instrumental vaginal delivery.
Results: Mean extent of first period of labor in group I and II was 12.4+.6 hours 10.8+0.2 hours respectively. In groups I the mean extent of nextperiod of labor was 1.1+0.1 hours and in group II 1.2+0.3 hours. In the mode of delivery, in groups I, 84% patients were delivered by SVD and 16% patients were delivered by instrumental delivery. In group II, 88% patients were delivered by SVD and 12% patents were delivered by instrumental delivery.
Conclusion: It is concluded that women having epidural analgesia caused in shorter duration of first stage and second stage of labour than women without analgesia. Whereas, in epidural groupinstrumental vaginal as well as caesarean delivery rate was not increased.

Key Words: Epidural, analgesia, labor, delivery,mode, pain, instrumental delivery

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INTRODUCTION

Labour has always been painful for many women. Kind David, a man with much experience wrote "fear took hold upon them there, and pain**,** as of a woman" **.**Epidural analgesia provides the most effective pain control during labor[1]. It bring almost outright labor straincomfort (90-95%) if administered timely and does not impede the progress of the first stage of labor[2]. First obstetric anesthetic was administered by Dr. James Young Simpson in 1847.[3] Epidural analgesia has applications ranging from analgesia with a minimal motor block to dense anesthesia with the full motor block. These variables can be controlled by drug choice, concentration and dosage[4].

The process of normal delivering a product of conception from the uterus via the birth canal after the 28th week of gestation.

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The stages includes dilatation that lasts from the onset of true labor until the cervix is fully dilated[5]. The actual Pain arises in the spinal segments T_{11} to T_{12} and L_1[6]. Followed by next phase of the expulsion of the fetus that lasts from the full dilatation of cervix until the fetus is born and the Pain is produced by distension of vagina and perineum Sensory pathways[7]. The last stage is from the birth of the child until the placenta and membranes are delivered and uterus has contracted firmly to compress the uterine blood sinuses. Pain pathway is similar to the first stage of labor[6 7].

This Pain devoted to debility, aggravates apprehension and can produce long haulhystericalbrawl which may negative impacton mother's accord with her baby during first few compelling days. Uterine action as a rule significantly affects the advancement of work. Early investigations demonstrated that enlistment of caudal or lumbar epidural absence of pain brought about a transient diminishing in uterine contractility, enduring 10–30 min[8-12]. Various technical considera-tions in the application of epidural analgesia are applied to overcome the later consequences[13,14]. The main objective is to compare the effects of epidural analgesia on the progress of labour and mode of delivery in two groups.

MATERIALS AND METHODS

This study was conducted from 15 Dec 2013 to 1 Jun 2014 at Department of Obstetrics & Gynecology, Shaikh Zaid Woman Hospital Larkana. A total of one

hundred (100) patients were included in this study. They were allocates in two groups randomly, 50 in each group. Group I includes patients who had epidural block for labour analgesia Group II includes those patients who experienced labour without the block. Primigravida, singleton pregnancy, patient ≥37 weeks gestation, cephalic presentation and active phase of labour (Cervical dilatation of 3cm or more) were included in this study. An informed consent was obtained from all the patients. All demographic profile and history of presenting complaints were obtained. Detailed examination including general physical examination and systemic examination were also done. Partogram was maintained which was graphic documentation of uterine contractions, oxytocin augmentation, and progress of labour. Main outcome measures included length of first and second stage of labour and the made of delivery whether spontaneous or instrumental vaginal delivery. All the descriptive data were analyzed by mean±SD. Chi Square test was applied on mode of delivery to see any significance between the groups. A p value of ≤0.05 was taken as significant.

RESULTS

Out of 100, mean age of women in group I was 24.8±3.6 years and 23.9±3.6 years in group II. The mean duration of marriage in group I was l7.2±10.8 months and mean duration of marriage in group II was 13.8±10.9 months. The mean gestation age in group I was 38.9±0.9 weeks and in group II was 39.1±1.0 weeks

Table No.1: Demographic profile of Group participants (N=100)

Demographic profile of participants		
Variables	Group I	Group II
Age	24.8+3.6 years	23.9+3.6 years
Duration of marriage	l7.2+10.8 months	13.8+10.9 months
Gestation age	38.9+0.9 weeks	39.1+1.0 weeks

Table No.2: comparison of Duration of first phase of labor between groups (N=100)

Duration (Hours) of first phase of labor	Groups I (n=50)		Groups II (n=50)	
	No.	Percentage	No.	%age
1-5	0	0	5	10.0
6-10	20	40.0	18	36.0
11-15	20	40.0	19	38.0
16-20	7	14.0	7	14.0
21-25	2	4.0	1	2.0
26-30	1	2.0	0	0
Mean±SD	12.4±4.6		10.8±4.5	

P value is non significance

Table 2: show the mean span of first phase of labor in group I was 12.4+4.6 hours and mean period of first stage of labour in group II endure 10.8+4.5 hours with statistically not significant p value of 0.062.Table showed that in group I 40% (n=20) were in 6-10 and 11-15 hrswhile in group II 38% (n=19) was in 11-15 hrs of duration.

Table 3: showed that mean duration of second phase of labor in group I was 1.1±0.2 hours and mean period of second stage of labour in group II was 1.2±1.3 hours. P value of 0.067 which is non-significant. In group I, 46% (n=23) was in <1 hrwhile in group II 44% (n=22) was in 1-2hrs duration

Table No.3: Comparison of duration of second phase of labor between groups (N=100)

Duration (Hours) of second phase of labor	Groups I (n=50)		Groups II (n=50)	
	No.	%tage	No.	%tage
< 1 hour	23	46.0	19	38.0
1-2 hours	19	38.0	22	44.0
> 2 hours	8	16.0	9	18.0
Mean ±SD	1.1±0.3		1.2±0.4	

P value is non significance

Table 4: shows the mode of delivery. In group I, 42 (84%) patients were delivered by SVD and 8 (16%) patients were delivered by instrumental delivery. In group II, 44 (88%) patients were delivered by SVD and 6 (12%) patients were delivered by instrumental delivery.

Table No.4: Comparison of mode of delivery between groups (N=100)

Mode of Delivery	Groups 1 (n=50)		Groups 2 (n=50)	
	No.	%tage	No.	%tage
Spontaneous vaginal delivery	42	84.0	44	88.0
Instrumental delivery	8	16.0	6	12.0

DISCUSSION

Epidural analgesia bring the most powerful pain control betweenlabors. Epidural block up to T10 is needed for labor and up to T4 for caesarean section. Epidural analgesia may high the chances of instrumental delivery by few mechanisms. Suppress serum oxytocin matched can developreducing uterine activity. This can be in section to IV fluid infusion being given before epidural analgesia reducing oxytocin release [15].

In our study, group I, the mean duration of the first phase of labor in group I and II was not significant. As compared with the study conducted by Halonen et al[16] the mean duration of the first phase of labor was not significant, which is comparable with our study. Another local study concluded by Khan et al[17] that the mean extent of the active first phase of labor in

primiparous women 5.10 hours in the epidural group while it was 6.65 hours in the control group (p less than 0.001). While in our study the mean duration of the first stage of labor in group I was 12.4 hours and group II was 10.8 hours, which is much higher than the above study.

In group I, the mean span of second phase of labor was 1.1±0.2 hours and mean extent of the second phase of labor in group II is 1.2±0.3 hours with a non significant p-value of 0.067. As compared with the study of Salim et al[18] the mean duration of the second stage of labor was 36 minutes, which is comparable with our study.

In our study, the approach of delivery, in group I, 42 (84%) patients were delivered by SVD and 8 (16%) patients were delivered by instrumental delivery. In group II, 44 (88%) patients were delivered by SVD and 6 (12%) patients were delivered by instrumental delivery. Halonen et al evaluated that there was no difference in the spontaneous delivery rate between the groups, but the cesarean delivery rate was significantly ($P < 0.05$) higher (16.3% vs. 6.7%) in the epidural analgesia faction than in the bolus group.

CONCLUSION

It is concluded that women having epidural analgesia caused in shorter duration of first stage and second stage of labour than women without analgesia. Whereas, in epidural group instrumental vaginal as well as caesarean delivery rate was not increased.

Recommendation: Obstetric care providers would benefit from this information to enhance their counselling regarding the use of epidural analgesia for women. Factors devoted to the result of labour are multiple and convoluted. We have a role to provide maximum analgesia during labour. This is clearly accomplish with epidural analgesia.

Author's Contribution:

Concept & Design of Study:	Ahmed-Ud-Din Soomro
Drafting:	Tanweer Akhtar
Data Analysis:	Najia Bhatti
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Original Article

Evaluation Typing and Grading of Bone Marrow Fibrosis in Malignant Disorders Affecting Bone Marrow

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ABSTRACT

Objective: To evaluate, type and grade bone marrow fibrosis in malignant disorders affecting bone marrow by using Reticulin and Van Gieson stain.

Study Design: Descriptive / cross- sectional study.

Place and Duration of Study: This study was conducted at the Haematology and Histopathology Department of Sheikh Zayed Hospital, Lahore from January 2013 to December 2014.

Materials and Methods: Paraffin embedded trephine blocks of 80 consecutive patients diagnosed with malignant disorders affecting bone marrow were taken, sections were made and stained with Reticulin and Van Gieson trichrome stain. Grading of bone marrow fibrosis was done using European consensus 2005 (EC 2005) on bone marrow fibrosis. All data was entered and analyzed by using SPSS 20 .Types and grades of fibrosis were reported by using frequency and percentages.

Results: In a total of 80 patient studied, 64 (80%) patients showed bone marrow fibrosis. Grade-1 fibrosis (MF-1) was seen in 50% grade-2 (MF- 2) was seen in 26.25% and grade-3 (MF- 3)was seen in 3.75 % of patients. Secondary bone marrow fibrosis was present in 62 (97%) of 64 cases and primary bone marrow fibrosis was seen in 2 (3%) of 64 cases.

Conclusion: Eighty percent of patients with various malignant disorders affecting bone marrow had some degree of bone marrow fibrosis. Grade-1 fibrosis (MF-1) was the most common, seen in 50% followed by grade-2 (MF- 2) seen in 26.25% and grade-3 (MF- 3) seen only in 3.75 % of patients..

Key Words: Bone marrow fibrosis, Reticulin stain, Van Gieson stain, thrombopoietin analogues

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INTRODUCTION

In recent years cancer has emerged as a serious health threat in many Asian countries resulting in tremendous loss of life in the region.[1,2] In year 2000 over 2 million people died of cancer in Asia and over 3 million new cancer cases were diagnosed[1]. Haematological malignancies are one of the five most frequent malignancies among males in Pakistan[3].

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Organophosphates (pesticides) has been linked to higher probability of childhood leukemia[4] and Non Hodgkin Lymphoma [5]

Fibrosis occurs in majority of patients with haematological malignancies [6]. When excessive it suppresses haematopoiesis and hence affects normal function of the bone marrow[7]

In principle bone marrow fibrosis may be either primary or secondary. Primary bone marrow fibrosis occurs on its own and is seen in primary myelofibrosis (PMF). Secondary bone marrow fibrosis develops during the course of other diseases like essential thrombocythaemia (ET), polycythaemia vera (PV), chronic myeloid leukaemia (CML) etc [8].

Abnormal cytokines released from platelets and megakaryocytes seems to be essential but not sufficient for fibrosis to occur. Platelets derived growth factor (PDGF), transforming growth factor-beta (TGF-beta), vascular endothelial growth factor (VEGF), basic fibroblast growth factor (b-FGF), matrix tissue inhibitors of metalloproteinase plays a part in development of fibrosis[6]

It was initially thought that increase in bone marrow stromal fibers are responsible for the haematopoietic abnormalities seen in certain diseases but on the contrary recent studies have shown that haematopoietic

abnormalities themselves are the cause of bone marrow fibrosis rather than their outcome[9]

Evidence has shown that there is significant correlation between poor survival and grade of reticulin fibrosis [10]. Collagen fibrosis is strongly correlated with abnormal blood counts and poorer prognosis[11]

Fibrosis is a complication of the bone marrow neoplasm that not only affects the quality of life of the patient but also shortens his/her survival time[12].

Fibrous tissue of the bone marrow is not well appreciated on H and E stain and require special stains. Masson's trichrome stain, Mallory's trichrome stain or Van Gieson trichrome stain, are used to identify collagen[13], while reticulin can be stained by Gordon and Sweets method or Gomori method using silver impregnation technique[13,14]

In the era of targeted therapies like JAK2 inhibitors and realizing the role of bone marrow fibrosis in predicting disease outcome in various haematological malignancies the present study of evaluation, typing and grading of bone marrow fibrosis was done.

MATERIALS AND METHODS

This was a descriptive cross sectional study, which was carried out in Haematology and Histopathology department of SZH, Lahore.

First 80 patients of both gender irrespective of age and sex presenting in the indoor and outdoor department of Shaikh Zayed Hospital who were diagnosed with malignant disorders affecting bone marrow were included in this study. It includes 50 males and 30 females.

Patients with history of chemotherapy and radiotherapy or those on thrombopoietin (TPO) analogues were not taken

Sections were made from bone marrow trephine blocks and stained with Reticulin/Silver stain and Van Gieson stain.

Grading of bone marrow fibrosis was done using European consensus 2005 (EC 2005) on bone marrow fibrosis. All data was entered and analyzed by using SPSS 20 (statistical package for social sciences).Types and grades of fibrosis were reported by using frequency and percentages

RESULTS

When trephine biopsies from these eighty patients were stained with, Reticulin and Van Gieson stain the bone marrow fibrosis was found positive in 37(74.0%) of males and 27(90.0%) of females (table-1).

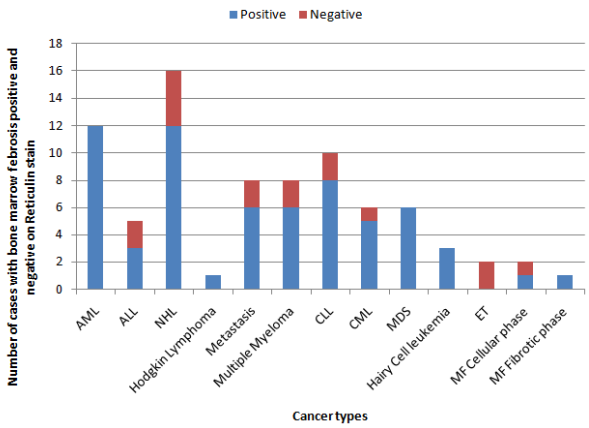

Figure No.1: Bone marrow fibrosis diagnosed on Reticulin +Van Gieson stain in 80 cases of malignant disorders affecting bone marrow

Table No.1: The distribution of cases with bone marrow fibrosis by gender in various malignant disorders affecting bone marrow

	Male				Female				Total			
	With BMF		Without BMF		With BMF		Without BMF		With BMF		Without BMF	
	N	%	n	%	N	%	n	%	n	%	n	%
AML	6	100.0	0	0.0	6	100.0	0	0.0	12	100.0	0	0.0
ALL	3	60.0	2	40.0	0	0.0	0	0.0	3	60.0	2	40.0
NHL	6	60.0	4	40.0	6	100.0	0	0.0	12	75.0	4	25.0
Hodgkin Lymphoma	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Metastasis	1	33.3	2	66.7	5	100.0	0	0.0	6	75.0	2	25.0
Multiple Myeloma	4	80.0	1	20.0	2	66.7	1	33.3	6	75.0	2	25.0
CLL	4	100.0	0	0.0	4	66.7	2	33.3	8	80.0	2	20.0
CML	3	75.0	1	25.0	2	100.0	0	0.0	5	83.3	1	16.7
MDS	6	100.0	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0
Hairy Cell leukemia	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0
ET	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	2	100.0
MF Cellular phase	0	0.0	1	100.0	1	100.0	0	0.0	1	50.0	1	50.0
MF Fibrotic phase	0	0.0	0	0.0	1	100.0	0	0.0	1	100.0	0	0.0
Total	37	74.0	13	26.0	27	90.0	3	10.0	64	80.0	16	20.0

Table No.2: Distribution of bone marrow fibrosis by age in various malignant disorders affecting bone marrow

	≤30 yrs				31 – 45 yrs				46 – 60 yrs				> 60 yrs				Total			
	With BMF		Without BMF		With BMF		Without BMF		With BMF		Without BMF		With BMF		Without BMF		With BMF		Without BMF	
	N	%	n	%	n	%	N	%	N	%	n	%	n	%	n	%	n	%	N	%
AML	4	100.0	0	0.0	4	100.0	0	0.0	4	100.0	0	0.0	0	0.0	0	0.0	12	100.0	0	0.0
ALL	3	60.0	2	40.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	60.0	2	40.0
NHL	0	0.0	0	0.0	5	100.0	0	0.0	5	55.6	4	44.4	2	100.0	0	0.0	12	75.0	4	25.0
Hodgkin Lymphoma	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Metastasis	0	0.0	1	100.0	0	0.0	1	100.0	4	100.0	0	0.0	2	100.0	0	0.0	6	75.0	2	25.0
Multiple Myeloma	0	0.0	0	0.0	4	100.0	0	0.0	2	100.0	0	0.0	0	0.0	2	100.0	6	75.0	2	25.0
CLL	0	0.0	0	0.0	2	100.0	0	0.0	4	100.0	0	0.0	2	50.0	2	50.0	8	80.0	2	20.0
CML	1	50.0	1	50.0	2	100.0	0	0.0	2	100.0	0	0.0	0	0.0	0	0.0	5	83.3	1	16.7
MDS	0	0.0	0	0.0	1	100.0	0	0.0	5	100.0	0	0.0	0	0.0	0	0.0	6	100.0	0	0.0
Hairy Cell leukemia	0	0.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0	0	0.0	0	0.0	3	100.0	0	0.0
ET	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0	0	0.0	0	0.0	2	100.0
MF Cellular phase	0	0.0	0	0.0	0	0.0	0	0.0	1	50.0	1	50.0	0	0.0	0	0.0	1	50.0	1	50.0
MF Fibrotic phase	1	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	100.0	0	0.0
Total	9	64.3	5	35.7	18	94.7	1	5.3	31	83.8	6	16.2	6	60.0	4	40.0	64	80.0	16	20.0

The mean age for BMF positive cases was 47.3 years (SD ±14.3) with a median age 50 (38.5 – 55.5) and for cases without BMF mean age was 46.1 years (SD ±17.9) and median age of 55 (29.0 – 59.5). (table: 2)

The bone marrow fibrosis was present in 9(64.3%) of cases with age below 30 years, 18(94.7%) in age group 31 – 45, 31(83.8%) in age group 46 – 60 years and 6(60.0%) in age group above 60 years. (table.2)

When Reticulin and Van Gieson stain was applied on trephine biopsies sample, 64 (80%) cases showed bone marrow fibrosis. (table 3), (fig 1).

Percentage of positivity in patients suffering from AML, Hodgkin lymphoma, MDS, hairy cell leukaemia and fibrotic phase of primary myelofibrosis was 100%.In CML the percentage of bone marrow fibrosis was 83.3% while 80% of patients with CLL showed bone marrow fibrosis on basis of these stains. In multiple myeloma, NHL and bone marrow metastasis 75% patients showed bone marrow fibrosis. In ALL the percentage of fibrosis was 60%, 50% of patients with cellular phase of MF are positive, while only two patients with ET included in the study were negative for BMF on basis of this stain . (table :3),(fig 1)

If we grade BMF on Reticulin and Van-Gieson stain using European consensus 2005, 16 (20%) patients had MF-0 (no fibrosis), 40(50%) patients had grade1 fibrosis, 21(26.25%) patients had grade 2 fibrosis, while grade 3 fibrosis was only seen in 3 (3.75%) patients (Table 4). Two patients having grade 3 fibrosis are of metastatic cancer while one patient belongs to fibrotic phase of PMF.

Table No.3: Results of Reticulin+Van Gieson stain in 80 cases of malignant disorders affecting bone marrow

Malignant disorders affecting bone marrow	Reticulin+Van Gieson stain					
	Positive		Negative		Total	
	N	%	N	%	N	%
AML	12	100.0	0	0.0	12	100.0
ALL	3	60.0	2	40.0	5	100.0
NHL	12	75.0	4	25.0	16	100.0
Hodgkin Lymphoma	1	100.0	0	0.0	1	100.0
Metastasis	6	75.0	2	25.0	8	100.0
Multiple Myeloma	6	75.0	2	25.0	8	100.0
CLL	8	80.0	2	20.0	10	100.0
CML	5	83.3	1	16.7	6	100.0
MDS	6	100.0	0	0.0	6	100.0
Hairy Cell leukemia	3	100.0	0	0.0	3	100.0
ET	0	0.0	2	100.0	2	100.0
PMF Cellular phase	1	50.0	1	50.0	2	100.0
PMF Fibrotic phase	1	100.0	0	0.0	1	100.0
Total	64	80.0	16	20.0	80	100.0

Table No.4: Grading of bone marrow fibrosis on Van Gieson and Reticulin stain using European Consensus-2005 grading system in 80 cases of malignant disorders affecting bone marrow

Malignant disorders affecting bone marrow	Reticulin stain and Van Gieson stain				Total
	MF-0	MF-1	MF-2	MF-3	
AML	0	10	2	0	12
ALL	2	1	2	0	5
NHL	4	10	2	0	16
Hodgkin Lymphoma	0	0	1	0	1
Metastasis	2	4	0	2	8
Multiple Myeloma	2	2	4	0	8
CLL	2	2	6	0	10
CML	1	2	3	0	6
MDS	0	6	0	0	6
Hairy Cell leukemia	0	2	1	0	3
ET	2	0	0	0	2
PMF Cellular phase	1	1	0	0	2
PMF Fibrotic phase	0	0	0	1	1
Total	16	40	21	3	80

DISCUSSION

Number of studies had been carried out to see the presence and prognostic implications of bone marrow fibrosis in various haematological disorders. Some studies were done
on haematological disorders in general [15], while others were done on some particular disorder e.g.CMPD[16], PMF[17,],MDS[18],CML,CLL and Multiple Myeloma[19]etc.

First detailed study on fibrous tissue content of the bone marrow in patients with various haematological disorders was carried out decades ago. A total of 247 samples from 157 patients with various haematological disorders were studied. These also included 140 samples from patients with various haematological malignancies and metastatic cancers. Out of these 140 samples, 121(86%) biopsy specimen showed bone marrow fibrosis[15].Four different patterns of argyrophilic fiber were identified. Type 1, normal was seen in 19 (13.57%) biopsies; Type 2, slightly increase in fine fibers around the trabeculae and sinuses was seen in 28 (20%) biopsies; Type 3, moderate increase with abundant fiber network was identified in 51 (36.4%) biopsies; and Type 4, markedly increased argyrophilic fibers with bundles of thick fibers was seen in 42 (30%) biopsies. Our present study on trephine biopsies from 80 patients with malignant disorders affecting bone marrow 64(80%) biopsies showed bone marrow fibrosis of variable grades. MF-0, normal, was present in 16 (20%) biopsies; MF1, in 40 (50%) biopsies; MF-2, in 21 (26.25%) biopsies and; MF-3, was identified in 3 (3.75%) biopsies. Silver impregnation technique was used for demonstration of reticulin in both studies while Masson trichrome stain and Van Gieson trichrome stain was used for demonstration of collagen in the previous and our present study respectively. More than one biopsy sample was taken from every patient during the course of the disease in the previous study while our present study was performed on single biopsy specimen from each patient taken at the time of diagnosis. The grading system used in the two studies was also different. Difference in the study design and grading system used were the main factor behind the difference in the results observed in these two studies.

In a study conducted at Armed Forces Institute of Pathology (AFIP) on trephine biopsies from 160 patients with various haematological disorders concluded that 94 (59%) patients had some degree of bone marrow fibrosis. If we calculate the percentage of bone marrow fibrosis in haematological malignancies from this study we will find out that out of 101 patients with haematological malignancies included in this study 93 (92%) patient had bone marrow fibrosis of various grade.35.48% have grade 1 fibrosis,27.95% have grade 2 ,24.73% grade 3 and 11.82% have grade 4 fibrosis The percentage of secondary fibrosis was 92.47% and primary fibrosis was 7.53%[20]. According to our present study on 80 patients with malignant disorders affecting bone marrow 64 (80%) patients had bone marrow fibrosis of varying grades.20% of patients had MF-0 (normal), 50% patients had MF-1, 26.25% percent of patients had MF-2, while 3.75% of patients had MF-3,while the percentage of secondary fibrosis was 97% and of primary fibrosis 3% according to our present study. If we compare these two studies we will find out that both studies were done on consecutive samples, taken from both males and females irrespective of age. Van Gieson stain was used for demonstration of collagen in both studies. Both studies used silver impregnation technique for demonstration of reticulin although Gomori reticulin stain was used for demonstration of reticulin in the previous study while Gordon and Sweet method was used for the demonstration of reticulin in our present study. The difference in the percentage of fibrosis that is 92% in the previous study and 80% in our present study is due to the difference in the grading system used in these two studies. In the previous study grading of reticulin was done on 0-4 scale according to the new proposed grading system, while European consensus on grading of bone marrow fibrosis was used in our present study, and reticulin content of bone marrow was graded on 0-3 scale. The slight high percentage of primary fibrosis 7.5% in a study done in AFIP as compared to 3% in our

own present study among the patients of malignant disorders affecting bone marrow was due the reason that patients from all over Pakistan, with various haematological disorders are referred to AFIP for treatment, so the number of PMF patients referred to this centre and included in the study were also high 7 as compared to 3 included in our present study.

CONCLUSION

1. 64(80%) of 80 patients with various malignant disorders affecting bone marrow had some degree of bone marrow fibrosis.
2. Bone marrow fibrosis was seen in seventy four percent of males and ninety percent of females and its maximum percentage (94.7%) was seen in patients between the age of 31-45 years.
3. Grade-1 fibrosis (MF-1) was the most common, seen in 50% of patients followed by grade-2 (MF-2) seen in 26.25% and grade-3 (MF- 3) was seen only in 3.75 % of patients.
4. Secondary bone marrow fibrosis was present in 62 (97%) of 64 cases whereas primary bone marrow fibrosis was seen in 2 (3%) of 64 cases.

Author's Contribution:

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Original Article

Postpartum Anemia

Parenteral Versus Oral Iron Therapy in Postpartum Anemia

Tanweer Akhtar[1], Shabnam Naz Shaikh[2] and Shabana Bano Soomro[3]

ABSTRACT

Objective: To compare the efficacy of oral ferrous sulphate and intravenous ferrous sucrose in postpartum iron deficiency anemia.

Study Design: Randomized control experimental study.

Place and Duration of Study: This study was conducted at the Postoperative and postnatal wards of sheikh Zaid women hospital Larkana from 1ST April 2016 to 30 September 2016.

Materials and Methods: Sixty cases of postpartum iron deficiency anemia were collected for this study and they were divided in two groups of 30 each. Group A was treated by intravenous ferrous sucrose 200mg given on day 2 and 4 of delivery (two doses only). Group B patients were received oral ferrous sulphate 200mg daily for 6 weeks. The follow up was done at day 15 and 40 postpartum in each group in term of increase hemoglobin and ferritin level.

Results: The mean Hb within 24-48 hours of delivery was 8.14±0.48gm/dl in group A and 8.73±0.66gm/dl in group B. The mean serum ferritin level was 11.37±1.67mcg/L in group A and 12.43±1.48mcg/L in group B. In group A, the mean Hb after 15 days follow up was 11.29±1.32gm/dl and in group B 9.94±0.55gm/dl and in group A, the mean serum ferritin level was 34.69±3.27mcg/L and in group B 14.73±0.98mcg/L. In group A, the mean Hb after 40 days follow up was 12.89±0.79 gm/dl and in group B was 11.40±0.39 gm/dl and in group A, the mean serum ferritin level was 46.18±4.05 mcg/L and in group B was 17.47±1.30 mcg/L.

Conclusion: Intravenous iron sucrose therapy increases the Hb level as well as serum ferritin level more rapidly than oral ferrous sulphate in women with postpartum anemia deficiency anemia.

Key Words: Postpartum anemia, oral iron therapy, intravenous iron therapy, iron deficiency anemia

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INTRODUCTION

Anemia is a major public health problem in worldwide, most vulnerable groups are pregnant, lactating women and children. Iron deficiency anemia is the most common cause of anemia followed by folate deficiency in pregnancy and during postpartum period[1,2]. It affects 50-60% of pregnant women in developing countries and 18% in developed countries and is an important risk factor in maternal morbidity leading to decreased work capacity and even death[3]. Postpartum hemoglobin (Hb) <10gm/dl, is observed in up to 30% of women mainly because of pre-existing iron deficiency during pregnancy or due to blood loss during delivery, irrespective of mode of delivery[4].

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Postpartum iron deficiency anemia affects economic and social aspects of women's lives including the ability to care children, household tasks. It also leads to depression, reduced exercise tolerance, reduced physical and mental work, infections, impaired wound healing and even death[5]. Blood transfusion, oral iron and intravenous iron has been used in treatment of iron deficiency anemia depending upon cause and severity[6]. There are number of hazards of allogeneic blood transfusion limiting its use in severe anemia[7]. Hb and ferritin estimations have been used clinically to categorize the patients into normal and abnormal for iron stores.[8,9] Although oral iron supplementation is more widely used, gastrointestinal effects make compliance poor[10]. The most frequent indications for parenteral iron therapy are unbearable gastrointestinal side effects of oral iron, insufficient intestinal absorption, refusal of blood transfusion[11]. There is increased evidence that iron sucrose is safe and effective in anemic pregnant and postpartum patients, due to low allergic effect and slow release of elementary ferrous from the complex[12]. Intravenous iron treated iron-deficiency anemia of pregnancy and restored iron stores faster and more effectively than oral iron, with no serious adverse reactions[13,16]. Parentral therapy has no advantage over oral iron if the latter is well tolerated. The main advantage of parenteral iron therapy is the certainty of its administration to correct

the Hb deficit and to build up the iron stores.[14,15] The objective of this study is to compare the efficacy of oral ferrous sulphate and intravenous ferrous sucrose in postpartum iron deficiency anemia.

MATERIALS AND METHODS

A randomized control experimental study conducted at postoperative and postnatal wards of Shaikh Zaid women hospital Larkana over a period of Six months from 1st April 2016 to 30 September 2016. Sampling was done by non-probability convenient technique. Women having postpartum anemia (hemoglobin <10gm/dl to 7gm/dl and ferritin level <15.microgram/l) at 24-48 hours of delivery and Women who deliver the single ton baby were included, whereas women had transfusion during labor or with comorbidity (infections, sepsis, renal, hepatic disease) were excluded.Sixty cases of iron deficiency anemia fulfilling the inclusion criteria were selected from postnatal and post-operative ward of Sheikh Zaid hospital Larkana after 24 hours of delivery and divided into two group which having 30 cases each. An informed consent was obtained for treating them by either method and using their data in the study. The investigations like hemoglobin %, red cell indices, peripheral blood smear and serum ferritin level were carried out within first 24-48 hours of delivery and at day 15 and day 40 after treatment. Patients were divided in two groups, group A and group B, randomly by using random table number. Group A was treated by intravenous ferrous sucrose 200mg given on day 2 day 4 of delivery (two doses only), ferrous sucrose was administered as an infusion in 100ml 0.9% sodium chloride solution for 30 minutes after test dose and no further supplementation was given. Group B patients were received oral ferrous sulphate 200mg daily for 6 weeks. The response of patients in each group in terms of increase of hemoglobin and ferritin level was recorded at day 15 and 40 postpartum. Collected data was entered into SPSS version 10 and analyzed accordingly.T he relevant variables included age, parity, and duration of marriage, hemoglobin before delivery, present hemoglobin and serum ferritin. These were classified as frequencies and proportions, giving mean and standard deviations for qualitative variables.
Outcome variables like increase in hemoglobin and ferritin level were recorded and compared between two treatments regimens, any difference found in two regimens were tested for statistically significance by applying student –t test. A p-value of 0.05 or less was taken as significant.

RESULTS

In our study 60 patients of iron deficiency anaemia after delivery were selected for this study and they were divided randomly into two groups of 30 each. Group A was treated by intravenous ferrous sucrose therapy and group B patients were received oral ferrous sulphate therapy.

The mean age of the patients in group A was 29.30±3.40 years and mean age of the patients in group B was 28.73±3.0 years. In the parity, in group A, there were 13 (43.3%) patients of primigravida and 17 (56.7%) patients of multi gravida and in group B, 14 (46.7%) patients of primigravida and 16 (53.3%) patients of multi gravida
In presenting symptoms, in group A, there were 28 (93.3%) patients of weakness, 13 (43.3%) patients of palpitation, 10 (33.3%) patients of lethargy, 5 (16.7%) patients of lack of concentration, 4 (13.3%) patients of dizziness and 9 (30%) patients of dyspnea and in group B, there were 20 (66.7%) patients of weakness, 7 (23.3%) patients of palpitation, 8 (26.7%) patients of lethargy, 2 (6.7%) patients of lack of concentration, 4 (13.3%) patients of dizziness and 1 (3.3%) patient of dyspnea. In group A, the mean Hb within 24-48 hours of delivery was 8.14±0.48 gm/dl and in group B was 8.73±0.66 gm/dl

Table No. I: Comparison of follow up of mean haemoglobin levels in postpartum iron deficiency anemic patients

Follow up	Group-A (Intravenous) (n=30)	Group-B (Oral) (n=30)	p-value
	Hemoglobin (gm/dl)	Hemoglobin (gm/dl)	
Within 24-48 hours	8.14±0.48	8.73±0.66	0.001
At 15 days	11.29±1.32	9.94±0.55	0.03
At 40 days	12.89±0.79	11.40±0.39	0.001

The mean HB within 24-48 hours of delivery was 8.14±0.48 gm/dl and in group b was 8.73±0.66 gm/dl. In group a, the mean HB after 15 days follow up was 11.29±1.32 gm/dl and in group b was 9.94±0.55 gm/dl. In group a, the mean HB after 40 days follow up was 12.89±0.79 gm/dl and in group b was 11.40±0.39 gm/dl. P-value

Table No No.2: Comparison of follow up of mean ferritin levels in postpartum iron deficiency anemic patients

Follow up	Group-A (Intravenous) (n=30)	Group-B (ORAL) (n=30)	P value
	Ferritin (mcg/L)	Ferritin (mcg/L)	
Within 24-48 hours	11.37±1.67	12.43±0.89	0.01
At 15 days	34.69±3.27	14.73±0.98	0.0001
At 40 days	48.18±4.05	17.47±1.30	0.0001

The mean ferritin within 24-48 hours of delivery was 11.37±1.67 mcg/l and in group b was 12.43±0.89 mcg/l. In group a, the mean serum ferritin level after 15

days follow up was 34.69±3.27 mcg/l and in group b was 14.73±0.98 mcg/l. In group a, the mean serum ferritin level after 40 days follow up was 46.18±4.05 mcg/l and in group b was 17.47±1.30 mcg/l.

DISCUSSION

The current study was conducted on patients of iron deficiency anemia to evaluate whether intravenous ferrous sucrose to women with postpartum anemia results in higher hemoglobin concentration and improved iron stores than using standard treatment with oral iron.

In our study the mean hemoglobin within 24-48 hours of delivery was 8.14±0.48 gm/dl in group A and 8.73±0.66 gm/dl in group B. While compared with the study of Bhandal and Russel that within 24-48 hours of delivery the mean hemoglobin was 7.50±0.80 gm/dl in intravenous group and 7.30±0.90 gm/dl in oral group, which is also same and comparable with our study.The level of hemoglobin increased in both treatment groups on 15 and 40 days follow up, but was significantly higher in the intravenous group at day 15 and 40. At 15 day follow up, the mean Hb increase was 3.15 gm/dl in group A and 1.21 gm/dl in group B, similarly in the study of Van Wick et al on 15 days follow up the mean Hb increase was 3.0 gm/dl in intravenous group and 2.0 gm/dl in oral group, which was comparable with our study because intravenous ferrous sucrose produces increase or rapidly blood hemoglobin levels than oral iron supplementation and also appears to increase iron store rapidly. Intravenous iron increased hemoglobin concentration and lowered risk for red-cell transfusion in patients with anemia. This possible profit is compensated by a potential increased risk of infection.[17] In our study serum ferritin level increased significantly only in the intravenous group and in the oral group (table 2). Similar results were obtained by the Bhandal and Russel[4] due to intravenous ferrous sucrose produces increase or rapidly blood hemoglobin levels than oral iron supplementation and also appears to increase iron store rapidly. Orally taken iron, which resulted in comparable lesser increases in haemoglobin and ferritin without any statistically significant differences among intravenous iron. However, the higher doses taken orally resulted in statistically significant increases in[18].

CONCLUSION

It is concluded from our study that intravenous iron sucrose therapy increases the hemoglobin level as well as serum ferritin level more rapidly than oral ferrous sulphate in women with postpartum iron deficiency anemia. Women treated with intravenous iron had significantly higher Hb levels on days 15 than those treated with oral iron; although on day 40, there was also significant difference between the two groups. Throughout the study, ferritin levels rise rapidly in those treated with intravenous iron and remained significantly higher than in those treated with oral iron.

Author's Contribution:

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Final Approval of version:	Tanweer Akhtar

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The start of the introduction should be Relevant. Reasons and Importance of the study should be clear. In the subject of the paper Significant findings may be elaborated. Previous 10 years National & International literature may be reviewed and recorded in the introduction. State the purpose of the Article and summarize the rationale for the study or observation. Give only strictly pertinent References and do not include data or conclusions from the work being reported.

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RESULTS

Present yours results in a logical sequence in the Text, Tables, Illustrations. Do not repeat in the text all the data in the tables or illustrations. Emphasize or Summarize only important observations. Do not duplicate data in Graphs & Tables.

DISCUSSION

Emphasize the new and important aspects of the study and conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or Results Section. Include in the Discussion Section the implications of the findings and their limitations, including implications for future research. Relate the observations to other relevant studies.

CONCLUSION

In this link write the goals of the study but avoid unqualified statements and conclusions not completely supported by data.

RECOMMENDATIONS

When appropriate, may be included.

ACKNOWLEDGMENTS

List of all contributors who do not meet the criteria for Authorship, such as a person who provided purely technical help, writing assistance or department chair who provided only general support. Financial & Material support should be acknowledged.

REFERENCES

It should be in the **Vancouver style**. References should be numbered in the order in which they are cited in the text. At the end of the article, the full list of references should give the names and initials of all the authors. **(if the authors are more than 6, then et al should be followed after the 6th name).** The author (s) names are followed by the title of the article; title of the journal abbreviated according to the style of the Index Medicus (see "List of Journals Indexed." Printed yearly in the January issue of Index Medicus); year volume and page number; e.g: Hall RR. The healing of tissues by C02 laser. Br J Surg: 1971;58:222-5. (Vancover Style).

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